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Railway Age

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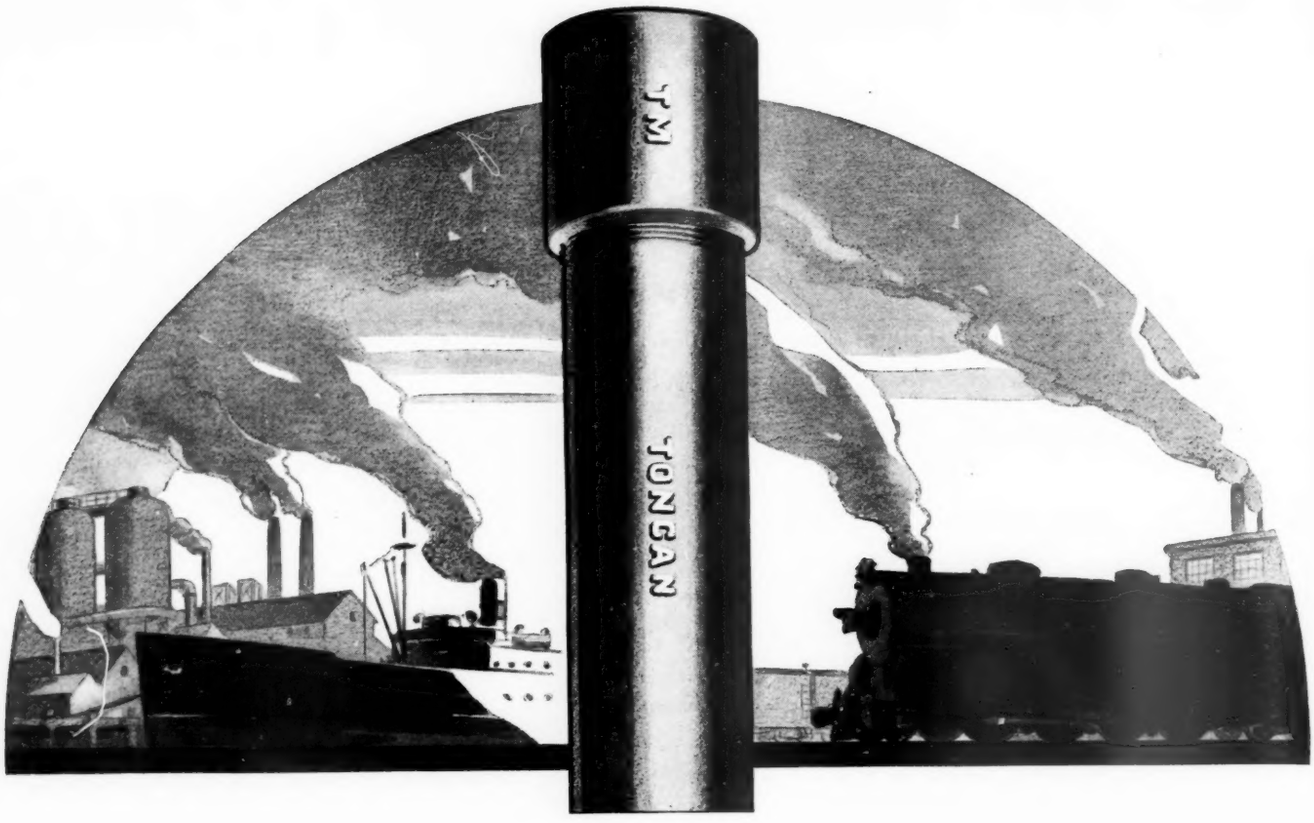

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RAILWAY AGE

The Railways and the Automotive Industries

Thirty years ago the railroads were, politically and economically the most powerful industry in the United States. They lost their power because they abused it. Today the automobile industry is the most powerful, although much less powerful than the railroads were. Will it come a cropper as the railroads did? Six years ago the vice-president of a large truck manufacturing company said: "If the railroads want to start a fight with us, we will simply take them on and lick them." Much legislation for state regulation of highway transportation has since been passed; and an act for regulation of interstate transportation by highway was passed at the last session of Congress. The "licking" has not been found so easy to do.

The railroad and automotive industries are partly competitors and partly customers of each other. There is also a great railway equipment and supply manufacturing industry which is indirectly in competition with the automobile manufacturing industry. The automobile industry knows its power—perhaps overestimates it. The railways and the railway equipment and supply manufacturing industry do not now seem to know their power, or at least they are not using it. The present conflict between these industries is not healthy for the railroads, the railway manufacturing industry or the public. May not the automobile industry be too sure that, in the long run, it will turn out well for it? Might it not be well for it to consider the possible desirability, in its own long self-interest, of helping to get the railroads treated by government as it and other industries want to be treated? Might it not learn something from the experience of the railways?

Railways and Automotive Industries—a Parallel

The railways in the heyday of their power neglected public safety and had a very bad accident record. This created a bitter public sentiment and a bad press, and caused much costly regulation. The highway accident record is at present far worse than the railway accident record ever was. The largest number of persons ever killed on the railways in any year was in 1907, when the fatalities—including 5,612 trespassers—were 11,839 and the number injured was 111,016. The number now killed on the highways annually is about 36,000 and the number injured about 1,000,000.

The railways, when untrammelled by regulation, practiced numerous forms of unfair discrimination demoralizing to commerce. This caused the beginning of the regulation of their rates, profits and service which resulted in their managements becoming hog-tied with government red tape. They opposed regulation; but the more they opposed it the more of it they got. The automobile manufacturing industry has continued to oppose regulation of commercial transportation by highway even after the regular carriers by highway have become converted to it. The manufacturers have continued to oppose it because they believe it will restrict their market for trucks, and are backed by the producers of oil because they believe it will restrict the market for gasoline. The automotive and allied industries have also joined in promoting lavish expenditures upon the highways to enlarge their markets, regardless of the resulting burdens upon the taxpayers. The public decided that its interest was paramount to that of the railroads and of the shippers that got big rebates. May not the taxpaying public some time decide that its interest is paramount to that of the automotive industry, oil producers and manufacturers of highway equipment and materials?

The railways in the heyday of their power used it ruthlessly through lobbies that made large expenditures in an effort to prevent or dictate federal and state legislation. Where are the railroads and their former lobbies now?

A Radical Propagandizes for the Automotive Industries

One reason for the former power of the railways was the influence they exerted on the press through advertising and distribution of free passes. One reason for the present power of the automotive and allied industries is that they are such large advertisers. Collier's Weekly of November 9 contained 52 pages of advertising of which approximately 21 pages, or about 40 percent, was from the automotive and allied industries. There was not a line of railroad advertising in the issue. By a coincidence, however, it contained an article by John T. Flynn entitled, "Soak the Poor Motorist." Mr.

Flynn is a well-known radical. He is a contributing editor of the "New Republic," and the author of such works as "Investments Trusts Gone Wrong," "Graft in Business," and "God's Gold—the Story of John D. Rockefeller and His Times." Official spokesmen of the automotive and allied industries are in the front rank of critics of the socialistic policies of the New Deal. Here is a radical, however, who, in an article in Collier's, in the ostensible defense of the poor motorist, uses every kind of data and argument originated and disseminated by the press agents of the automotive and allied interests in their anti-railway propaganda in defense of subsidization of highway commercial transportation and against its regulation.

Heavy taxation of highway use, Mr. Flynn alleges, is discouraging the goose that lays the golden eggs. The metaphor would be a happy one if it would fit. As it happens, however, annual highway costs, no matter how calculated, as Mr. Flynn himself discloses, greatly exceed revenues from motor vehicle and gasoline "taxes." Just how valuable is a goose which costs more to feed than her eggs will bring?

Highway "Taxes" and "Railroad Lobbies"

"The payment of fees by motorists for the purpose of constructing and maintaining the highways is not a question of taxation in the ordinary sense." The quotation just given is from "A Study in Highway Economics" by Wilfred Owen. Mr. Owen points out that "the automobile interests have been very particular, of late, to stress the so-called 'tax bill' paid by motor vehicles, to create the impression that the government uses this money for its own purposes, as it does other taxes it receives." Mr. Flynn strives valiantly to create the same impression. He is not content, however, to present highway "taxes" in this false light. He departs from his main theme to attack the Motor Carrier bill recently passed by Congress. He foresees the formation of holding companies to bring truck and bus operations into the control of the wicked railways, which he assumes are interested only in curbing their growth. He states definitely that the railways are going to make a drive to increase taxes on automobiles, a statement untrue, and unsupported and unsupportable by any evidence.

So impartial a student of business and transportation problems as Thomas F. Woodlock ridicules Mr. Flynn's article. As Mr. Woodlock says in the Wall Street Journal, Mr. Flynn sees terrible "railroad lobbies" not only pressing for federal highway regulation, but "incessantly besieging the states for more restrictive measures, and 'with the present trend it will not be long before the motor transport industry is encompassed by a comprehensive regulatory system.'"

The railroads' trouble, according to Mr. Flynn, "does not lie in the competition of the buses and trucks, but in their impossible top-heavy capital structures—loaded as they are with billions of dollars of bonds, the interest on which is devouring the roads. They are enabled to run today—many of them—because of the hundreds of millions of dollars of public money poured into them by the Reconstruction Finance Corporation." The advances of the RFC to the railroads to date, as Mr. Woodlock points out, amount to only about 2½ per cent of the total investment in them. It seems somewhat of an exaggeration to assert that such relatively small advances are "enabling them to run"—but Mr. Flynn made thorough use of the anti-railway propaganda emanating from the railways' competitors.

Other Lobbies and Government Ownership

It is quite true that the railways have been seeking state and federal legislation to equalize the terms fixed by government for competition in transportation. But, speaking of "railroad lobbies," we seem to have heard of a Motor Users' Highway Conference which has been active at Washington and state capitals—and the large funds for which have not been principally furnished by highway users. Senator Wheeler, as part of his campaign for government ownership of railways, is investigating the receipts and expenditures of the Association of American Railroads. No doubt he would consider as intended to cramp his style a suggestion that he also investigate the receipts and expenditures made by the automotive and allied industries in carrying on their activities against the railroads.

As long as the automotive and allied industries are such large advertisers, and the railways and allied industries are such small advertisers, the latter cannot hope to meet the competition of the former in carrying on propaganda through some important channels. It was an experienced publisher who said, when "freedom of the press" from NRA was being hotly discussed, "There never has been any real freedom of the press since there was the first big advertiser."

But, in considering the way in which the automotive and allied industries are using, and may use, their power, we wonder whether they have ever thought of the possibility of government ownership of railways, of the contribution they are making toward bringing it about and of what its effects on them might be. If it comes it will be partly due to New Deal policies of increasing railway operating expenses, but more largely due to Old Deal policies of regulating and not subsidizing the railways while subsidizing and not regulating their competitors.

Some Questions for the Automotive Industries

The government does not tolerate competition with its postal service. Furthermore, Senator Wheeler's bill authorizes not only government acquisition of the railways, but of all means of commercial transportation. Do the automotive interests believe that if the government owned the railways it would long follow such policies of favoring competing means of transportation as it does now? The automotive interests are among the most outspoken in opposing for their own and other industries New Deal policies the paternity of which is suggested by their striking resemblance to Old Deal policies for the railways that the same inter-

ests defend. Under government ownership of railways the government would become the employer of two or three times as many persons as it is now and the purchaser for the railways of more than $2,000,000,000 of equipment, materials and fuel from much the same companies from which the automotive interests now make large purchases. Do these interests like the prospect of the government acquiring, as a railway employer and purchaser, the power over prices and labor relations in all industries that this would give it?

The automotive industry and its allies are rejoicing in their power—as the railroads were thirty years ago. Less than thirty years ago the president of a large railroad system said to the writer, "This company does not employ me to tell the public about its business." Such propaganda as was disseminated in Mr. Flynn's article plays directly into the hands of the automotive interests—but also directly in the hands of the avowed advocates of government ownership of railways, of which, we believe, Mr. Flynn is one. Are the automotive industry and its allies sure that such propaganda will not only help them in fighting the railways, but also help them beat the New Deal? Or may not the *Railway Age* be right in its belief that the adoption of government ownership of railways would render futile opposition to all specific socialistic New Deal policies and bring the house down on the entire system of capitalism in the United States?

Capitalists Who Shoot Capitalism in the Back

And are the industries attacking the railways sure that they are as popular and powerful as their influence with a large part of the press indicates? Already many of the 25,000,000 owners of private automobiles no longer enjoy the hazards of travel by highway caused by millions of reckless drivers with cars that are junk and who carry no insurance for the protection of lives, limbs and property, and by the operation of thousands of buses and trucks that could not use the highways under a rational policy of regulating and charging for their use.

Many owners of automobiles are learning that the answer to death on the highways would be a simpler one were there not so many militant interests which would stand to lose business if the only methods holding any promise of reducing highway accidents were adopted. Many business interests and taxpayers also are learning, in spite of propaganda emanating from interested sources and disseminated by Mr. Flynn and others, that unfair competition due to unequal government regulation and financed with the taxpayers' money is no more desirable in transportation than in other industries, especially when its plain direct tendency is to push the railways toward government ownership.

There will always be competition between the automotive and allied industries, on the one side, and the railroads and allied industries, on the other side—as long as there is private ownership of means of transportation. But the professed opponents of New Deal socialistic policies should become consistent and honest, if for no better reason than that they cannot reasonably hope to defeat such policies by following a course that is helping push the railways toward government ownership. When a radical such as John T. Flynn writes an article which disseminates propaganda that will be endorsed *both by large private industries and by every avowed advocate of government ownership of railways,* it becomes only too plain that, as the *Railway Age* often has emphasized, opponents of socialistic policies in the front trenches are being shot in the back by ostensible opponents of socialistic policies in the rear trenches.

Value of Railway Transportation Illustrated

Suppose a town had the advantage of the several modes of transport, railway, water and highway and air transportation, and the railways were suddenly removed, what would be the result? Down in Key West, to which our service has been indefinitely suspended due to damage of our line on the Keys, they are having an unfortunate but concrete example of what this means. Previous to the storm Key West was also served by so-called cheap water and highway transportation. It has a deep harbor, something to which every town on this coast aspires.

As in other communities, there were people in Key West who were inclined to be antagonistic toward the railway and infer that the city could get along just as well without it. Now that they have been deprived of the railway by an unforeseen "Act of God," it is interesting to note how some of these opinions have changed. Key West still has its water transportation, a deep commodious harbor. Highway transportation will shortly be restored and planes are being operated to and from the city. But are its citizens satisfied with this?

In a survey of the situation in Key West conducted by the Miami Herald, some surprising testimonials of the value of railway transportation are recorded. Among other things it is stated that the loss of the railway means the loss of $1,000,000 per year in direct and contingent payrolls, $100,000 a year in county and city taxes; that other lines of business might be lost as a result and the population drop from 12,500 to 5,000. Other prominent citizens of Key West state that if the railway were abandoned the effect on the city's economic life would be ruinous.

A prominent fish dealer of Key West is reported as saying, "You can't operate a fish business without a railway. We tried operating some years ago by shipping by boat, but it always worked out that there were no fish when the boat was here, and when there were fish the boat was away. Fish are perishable and you have to move them quickly when they are on hand. We used to ship large supplies to the South and Middle West and boats can not take care of that. Without the railroad it means that Key West is through as a fish center."

So here is Key West with a fine deep water harbor—waterway, plane and highway transportation, yet the possible loss of railway transportation is regarded by many as a major calamity. Other communities which value their railway transportation lightly please take note.

From the F. E. C. Business Bulletin for October, 1935.

Many Influences Affect Trend of Bridge Design and Construction*

Erection Progress View—Mississippi River Bridge at New Orleans

A review of the advances in steel bridge practices resulting from better materials, improved methods and modern equipment

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IT hardly seems creditable that in the 100 years intervening since the building of the first Howe truss, bridge building would develop from a simple timber truss span with vertical tie rods of iron, to an all-steel structure such as the Golden Gate bridge now under construction, which has a span opening of 4,200 ft., or approximately four-fifths of a mile. To accomplish this, much study, research and experimentation have been necessary.

The types of bridges, as well as the materials used, have been greatly improved. The earlier bridges were made of wood, combined with cast and wrought iron, which were later superseded by Bessemer steel, and this in turn by open hearth steel shortly afterwards. It was not until between 1880 and 1890 that steel came into common use, supplanting wrought iron almost entirely.

A New Industry

The building of steel bridges is a relatively new industry, and its development can be traced to the growth of the railroads. As the locomotives were made larger, the earlier timber bridges and trestles had to be replaced with steel structures, and the lighter steel bridges eventually had to be replaced with others designed for heavier loads and greater train clearances. The government has also demanded greater vertical and horizontal clearances for bridges over navigable streams and this has necessitated the construction of longer spans, and in many cases, where the vertical clearance was small, the construction of movable bridges. Consequently, many different types of movable bridges were designed to suit the different conditions.

Improvements in rolling mill equipment and operations have resulted in a better grade of steel, and it has been found that alloy steel, although more expensive than carbon steel, may be used economically for certain purposes. The 1935 specifications of the American Railway Engineering Association for steel railway bridges acknowledge this improvement by permitting a higher allowable unit stress for ordinary carbon steel. These specifications also permit the use of silicon and nickel steels because it has been found especially advantageous, on account of their high ultimate strength, to use these two alloy steels in large structures. The basic unit stress for silicon steel, as an example, is about 50 per cent greater than for carbon steel, making the weight of a member designed of silicon steel about one-third less than if designed of carbon steel. The reduction in weight makes it quite apparent that considerable saving can be made in long span bridges.

Not Always of Advantage

In the design of compression members, the greatest saving is obtained when the slenderness ratio of $\frac{l}{r}$ is low. The economy in the use of silicon steel decreases as the ratio of $\frac{l}{r}$ increases. The allowable unit stresses for carbon, silicon and alloy steels vary considerably for low values of the slenderness ratio, but are practically the same when the ratios approach 200. Those of you who are familiar with the various column formulas and with the curves which can be plotted from them, know that as the $\frac{l}{r}$ increases, the allowable unit stress decreases rapidly, and that the curves plotted for material having the same modulus of elasticity, although having different yield and ultimate limits, converge to practically the same value for slenderness ratio of 200. Inasmuch as the cost of the plain alloy steel is considerably greater than that of carbon steel, it is not economical to use alloy steel except where there is a decided increase in the permissible unit stress.

Although much has been published in the last two or three years pointing out the merits of high tensile steels and the advantages to be gained by their use, these steels should be specified only by the competent engineer, who, on account of his training and expert knowledge, is best able to determine when their use will result in a better balanced and more economical structure. Care must be taken in the design and details, and accurate shop work is necessary to insure proper distribution of stress.

Longer Spans Demanded

In nearly all new bridge work over navigable streams, government regulations require that the openings be-

* Abstracted from a paper presented before the convention of the American Railway Bridge and Building Association at Chicago on October 16.

tween piers be much wider than in the past. The reduction in dead load, due to the use of high tensile steel, permits bridges of various types to be built with longer spans, and thus meet the government requirements. These longer spans in turn reduce the number of piers in a multiple-span bridge, which effects a great saving when the cost of deep piers is considered. For the shorter spans, however, there is no economy in the use of the high tensile steels, as the saving in weight is negligible due to the minimum sections required by the various specifications and the extra cost for these steels.

The use of silicon steel in railroad bridge construction was first introduced by the Chicago, Burlington & Quincy in its Ohio River bridge at Metropolis, Ill., after extensive tests on silicon and other alloy steels by the United States Bureau of Standards. This bridge was built in 1916-17, and comprises one 720-ft., four 551-ft. 3-in., one 300-ft. and one 246-ft. double-track simple truss spans.

While on the subject of high tensile steels, it might be well to mention that, although considerable saving is made by their use in heavy bridge or building work, the greatest advantage lies in the construction of moveable equipment, such as railroad cars, overhead cranes, gantry cranes, swinging booms and similar equipment, where the reduction in weight results in greater economy due to the saving in the required operating motive power. This is also true of large movable bridges, as the use of alloy or high tensile steel reduces the dead load weight of the movable spans and decreases correspondingly the counterweights and the operating power of the machinery. In our movable structures, any saving in weight will be materially reflected in the cost of operation. Time is also saved in the acceleration of a structure when its mass or weight is reduced.

In order to build bridges at many sites, it has been necessary to design longer and larger spans than ever built before. Continuous, cantilever and suspension types have proved to be the most adaptable where long-span construction is necessary. The longest simple span ever built is the 720-ft. span in the Metropolis bridge, to which reference has already been made. There is a continuous truss bridge,* consisting of two spans, each 775 ft. long, over the Ohio river at Sciotoville, Ohio. The Quebec bridge, which is of cantilever construction, has a span of 1,800 ft. The longest suspension bridge completed to date is the George Washington Memorial bridge over the Hudson river, which has a 3,500-ft. main span, although the Golden Gate bridge, now under construction at San Francisco, Cal., will have a span of 4,200 ft. The longest railroad arch bridge is the Sidney Harbor bridge in Australia, which has a 1,600-ft. span. The longest vertical lift bridge is a railroad bridge across Cape Cod canal, at Buzzards Bay. This span is 544 ft. between end bearings, and in a raised position will provide a vertical clearance of 135 ft.

Greater Use of Wide-Flange Beams

The trend in structural engineering during the last few years has been toward a better understanding between engineers and fabricators. This is indicated by the universal application of the solid rolled sections and the "getting together" of the large steel companies in the adoption of sections of uniform size and weight for wide-flange beams. Altogether there are about 50 sets of rolls for solid rolled sections, and by spreading the rolls, different weights for each section are obtained. The largest beam section is 36 in. deep and weighs 300 lb. per ft. The heaviest column section is 18¾ in. by 16¾ in. and weighs 426 lb. per ft. Heavier column or beam sections than these are obtained by riveting cover plates to the flanges.

The advantages of the solid rolled sections are apparent. When used for a column, they take the place of the built-up sections used heretofore, usually consisting of a web plate, four angles and two or more cover plates. When used as a beam, they replace built-up plate girders and have a larger section modulus for the same weight at a much lower fabricating cost. In recognition of the greater depth of the larger wide flange beams now available, the specifications of the American Railway Engineering Association permit beam spans of much greater length than formerly. The wide-flange beams are well adapted for web members of trusses, and in many of the later bridge designs, they have been used for both web and chord members. There are other advantages in the use of solid rolled sections, such as simplicity in ordering and shop detailing and in more prompt deliveries.

Some railroads are now replacing their wooden pile trestles with wide-flange beams supported on reinforced concrete piles. Because of the small initial cost and the permanency of the construction, these beams will be used extensively in the future for such structures.

Another important use to which the wide-flange beam is applied is the beam arch construction, commonly called "rigid frame." Two outstanding examples, already built and in service, are the Field House for the University of Chicago and the International Amphitheater at the Union Stock Yards, Chicago. This arch construction is also an ideal construction for highway and railway crossings of ordinary lengths. A great deal has been published recently about the rigid concrete frame for grade separation. However, one large rail-

Chesapeake & Ohio Bridge Over the Ohio River at Sciotoville, Ohio, Two 775-ft. Spans Continuous Over the Intermediate Pier

* Chesapeake & Ohio.

road crossing of steel rigid-frame construction is now being designed and will shortly be built.

Ballast Floors

Ballast floor construction is coming into more general use in bridges. In trusses and through plate girder spans, the ballast rests on steel plates or creosoted timbers supported by I-beams. In deck plate girder spans, the ballast rests on concrete placed on the top of the girders. The steel plates used generally in ballast floor construction have a copper content which makes them four to six times as corrosion-resisting as ordinary steel. The riding qualities of a ballast floor bridge are greatly improved as the dead load is considerably greater than for open deck bridges, and due to this increased load and the damping effect of the ballast, the impact applied from the moving load is reduced as much as 50 per cent, in the opinion of some railroads.

This reduction in impact on a bridge, plus the better riding qualities of the train, offset fairly well the additional initial cost of the ballast floor and the small amount of additional steel. The ballast floor reduces the maintenance cost of a bridge and affords a good protection against fire hazards, which latter, in my opinion, is

The Longest Simple Truss Span—Chicago, Burlington & Quincy Crossing of the Ohio River at Metropolis, Ill.

not given sufficient consideration. A fire on a timber deck bridge will not only injure the steel, but will result in expense in repairing the floor and in the still greater expense of re-routing trains over other lines with its consequent delays. In the past few years, there has been a trend to safeguard these larger and more important bridges by providing a complete steel floor or by making intermediate panels of steel. These panels, acting as fire breaks, are placed three or four panels apart throughout the length of the bridge.

What of Welding?

Great strides have been made in welding in recent years. Many building codes now permit welding to be substituted for or used in combination with rivets and bolts in structural steel connections, and a number of structures have been built with all connections welded. The largest all-welded highway bridge to be completed thus far comprises a crossing of the Rancocas river in New Jersey. This structure has a roadway of 36 ft. and one 5-ft. sidewalk, and consists of two fixed spans, each 112 ft. 8 in. long, and a center swing span, 160 ft. long. All spans are of the pony type construction. Many engineers, however, are cautious in advocating welding as a substitute for riveting. Some are skeptical, some are enthusiastic, and others resort to welding in moderation. In the case of railroad bridges which are subjected to high impact stresses, it is well to proceed slowly, as little experimenting has been done as yet on welds subjected to shocks and vibration. At the present time, however, elaborate experiments are being made to determine the effect of vibration on welds.

Welding has been found very useful in making repairs and in remodeling old work. The first large project of strengthening an existing structure by means of welding was carried out by the American Bridge Company in 1927 on the Chicago Great Western bridge over the Missouri river at Leavenworth, Kan. The cost of strengthening this bridge by welding was less than the estimated figure for a riveted job, and from reports received, the method used was a success and the work has proved satisfactory.

Flame cutting with the improved acetylene torch has simplified re-entrant and curved cuts; and it has been found practicable to split beams for arch work and to do a great deal of ordinary beam coping with the torch.

Better Design of Members

Another recent trend worthy of mention is the elimination of the lacing bars in heavy truss members. In designing the compression members of certain structures, the engineers have used solid web diaphragms in place of lacing bars. This type of construction reduces the number of component parts and provides better access for riveting and painting.

In later years, different types of compression members have been subjected to considerable research and tests, and it has been found that a member with the solid diaphragm web to carry the transverse shear of the member shows superiority over a latticed member. The shop cost of such a member is also considerably less than for one made up with lacing bars. (The results of compression member tests can be found in the Transactions of the American Society of Civil Engineers). This substitution of a solid web diaphragm for lacing bars is a trend towards better designed structures, and parallels the use of larger rivets, especially in heavier members. Rivets ¾-in. in diameter are now seldom used in bridge construction, and rivets 1-in. in diameter are commonly used for heavy work where ⅞-in. rivets were formerly used. In the heaviest work, 1⅛-in. and 1¼-in. rivets are now common. Rivets should be as large as practicable, taking into account the thickness of material, the number of pieces, and the stress in the member. The longer rivets permit the use of larger fitting-up bolts with which to draw the pieces tighter together, and fewer rivets of larger size are required, thereby reducing the number of holes to be punched and the rivets to be driven.

Erection

The problems facing the erecting engineer of today when starting a new project depend largely upon the physical condition at the site, the time permitted for erection, the particular season of the year during which erection is to take place, the amount of river flow, the maintenance of traffic during erection, and the type of structure. The method of erecting, depending upon these various conditions, may, therefore, be different for two bridges of the same type and length. After considering the many conditions entering into the erection of steel bridges, it is apparent that each structure presents an individual problem that requires its own special treatment. Procedure very rarely can be governed entirely by precedent but must be developed by a study of the

different characteristics by engineers experienced in these lines.

In general, under ordinary conditions, small spans will be erected on falsework, whereas, larger spans, crossing deep or swift rivers will be erected by the cantilever method. The heavier cantilever and continuous types of bridges are practically all erected by this method. In the case of a railroad bridge, where the bridge will eventually carry a heavy live load, the cantilever method is economical as the truss seldom needs reinforcing to take the erection stresses. The temporary bents required for the cantilever erection are often made of various members which will later be used in the finished bridge.

The most universal type of equipment used for erecting bridges is the locomotive crane, which is capable of moving along a track as well as picking up and rotating a load. Stiff-leg derricks and travelers are used to advantage in almost every type of bridge. They are usually preferred in larger structures because they weigh less for a given capacity. They can be modified in innumerable ways to adapt them to special needs in the erection of towers for suspension spans and long bascule spans erected in an open position. They are often designed to be drawn vertically up the side of the structure as the erection progresses. Travelers are also readily adapted for the erection of stiffening trusses and floor systems of suspension bridges. The latest device for erecting towers for suspension bridges, used on the Trans-Bay bridge at San Francisco, Cal., is the so-called hammer head crane.

We all know that steel should be kept clean and painted to retard deterioration from rust. Expansion shoes should be kept clean from cinders and dirt to permit them to function properly under live load and temperature changes. The tendency in the last few years has been to substitute the single-segmental rocker for the roller nest. This type of expansion bearing is easier to clean and has less parts to be painted and repaired.

To my mind, the maintenance of a bridge should be well considered at the time it is designed. For a small additional initial cost, considerable saving can be made later in maintenance. To cite an example: An additional cover plate, ⅜ in. or ½ in. thick, added to the top flanges of the stringers and floor-beams, or even an extra eighth of an inch added to the thickness of a required cover plate, or extra thickness added to the top flange angles, affords considerable protection against deterioration of the steel from brine drippings.

Many bridge engineers overlook the fact that this additional weight increases the total cost of a bridge by only a very small amount, and it offers good insurance against early repairs. Consider the stringers in a bridge as having 14-in. cover plates. Increasing the thickness of the top cover plate by one-eighth of an inch results in no additional shop labor, and only the extra material involved enters into the cost. The increase in the cost per foot of track, considering two stringers having the thickness of the top cover plate increased one-eighth of an inch, would amount to approximately 20 cents per foot. This same reasoning applies to various details which many buyers and designers try to cut to the limit. In the past, as a rule, bridges required replacements because of inadequate details rather than because of overstress in the main members. The details should give adequate strength and insure economical construction and easy maintenance.

Conclusion

Summing up my remarks, the most outstanding developments in the bridge building industry which have taken place in recent years and which will undoubtedly aid in future developments are the following:

1. The introduction of the wide-flange beams.

2. The standardization of rolled sections by the two principal manufacturers.

3. The standardization of specifications. Great progress has been made in the development of more nearly uniform specifications for the design, fabrication and erection of structural steel. Fairly uniform specifications have been issued by the American Railway Engineering Association, the American Association of State Highway Officials, and the American Institute of Steel Construction. The material specifications prepared by the American Society for Testing Materials have been generally adopted by these organizations, and this has led to uniformity throughout the industry.

4. The use of alloy steels in structural shapes, permitting higher working stresses and less weight, thus creating a tendency towards longer spans and fewer piers.

5. The rigid-frame construction.

6. The improvement of the acetylene torch and modern welding equipment.

7. The development of various types of bridges which permit cantilever erection and eliminate expensive falsework.

8. The development of the aesthetic temperament of the nation, requiring bridges and structures to present a more artistic and pleasing appearance.

* * *

A Recent Example of a Vertical Lift Bridge—Elgin, Joliet & Eastern Crossing of the Des Plaines River Near Joliet, Ill., 313-ft. Double-Track Span On a Skew of 51 Deg. 37 Min.

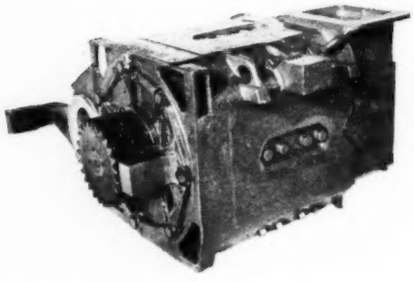
Photo by Robert A. Carr

Buenos Aires & Pacific Transcontinental Train Taking Water at La Paz, Argentina

Electric Drive for Diesel Motive Power

By W. D. Bearce

Transportation Engineering Dept., General Electric Company



Combined weight of motors and generators reduced 50 per cent since 1932—Overall efficiency is 83 per cent

1200-Hp. Electric Generator—Modern Traction Motor Is Shown at Left

THE use of the internal combustion engine for the propulsion of rail cars and locomotives requires some form of transmission between the prime mover and the driving wheels which will provide a suitable series of gear changes or its equivalent to effectively utilize the power of the engine. This transmission must provide for vehicle speeds ranging in passenger service from standstill to 100 miles per hour or more.

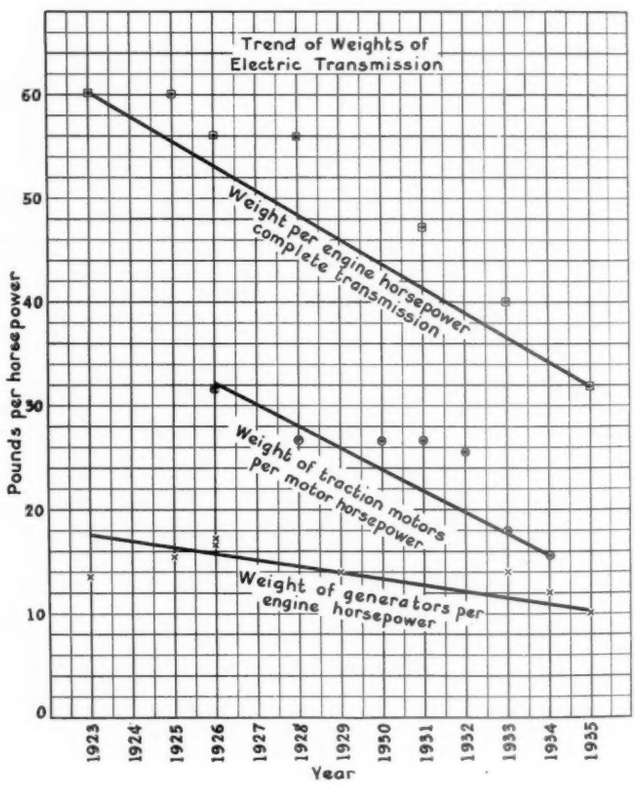
To insure full power from the engine, its speed should be maintained between rather narrow limits for reasons of economy both of operation and maintenance. A Diesel engine also due to its constructional characteristics has a certain natural speed at which it functions most satisfactorily.

Electric transmission as built for modern railroad motive power consisting of specially controlled generator and traction motors is designed to supply the torque and speed required for a given vehicle within a relatively small speed range of the engine. The successive clutching, speeding up, and declutching for a repetition of the starting cycle are thus avoided.

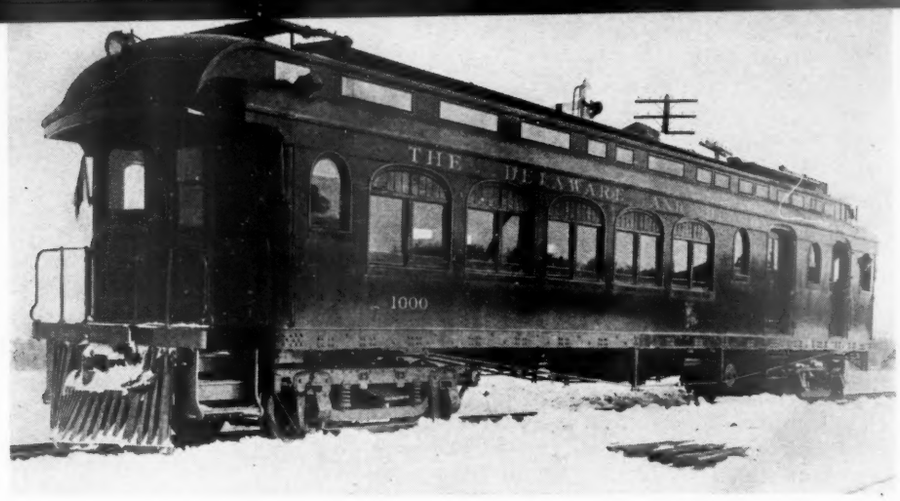
Comparison between mechanical and electric transmissions is difficult for the reason that the latter is used in practically all cases in this country above 175 hp. In Europe some installations are using as high as 300 hp. with mechanical or hydraulic drive. Even in these smaller sizes appreciable benefits are credited to electric drive by the avoidance of excessive speed changes due to gear shifting.

In the larger sizes electric drive has been used almost exclusively due to the almost insurmountable problem of building a suitable clutch and gear box. The efficiency of the conventional gear shift or hydraulic drive, all things considered, is little if any better than electric transmission and both lack the flexibility, reliability and low maintenance provided by the electric method with its equivalent of an infinite number of gear ratios, which change automatically in accordance with the load requirements.

Improvements are constantly being made, but the present assumption of 93 per cent efficiency for the generator and 90 per cent for the motors fairly represents modern equipment. In recent installations, the auxiliaries are provided for by a separate belted or engine driven generator and are not considered a part of the transmission.



Notable weight reductions have been made in the last year or two. The figure of 42 lb. per horsepower as applying to the first 600 hp. Union Pacific train was fairly representative at the time this equipment was manufactured. Recent improvements, however, such as



Early Gas-Electric Car

lighter generator and motors, show successive reductions to 38 lb. and 34 lb. for later designs.

The equipment now being placed in operation by the Illinois Central shows a weight of slightly less than 30 lb. per hp. The GE-716 motor complete, for example, weighed 18 lb. per hp., while the GE-721 built a year or two later weighs less than 16 lb. per hp. A 600 hp. generator built for the first Burlington train weighed 14 lb. per hp., while the latest Illinois Central 1,200 hp. generator weighs only 10 lb. per hp.

The figure of 20 lb. frequently quoted as representing the weight per hp. of modern Diesel engines is not strictly comparable to the weights given for electric transmission. If we add to this weight of the bare engine, the various essential radiators, cooling fans, oiling system, fuel and fuel tanks, the best Diesel equipment may weigh 35 lb. per hp.

Over a period of nearly 30 years electric transmission has been successfully used to utilize the power of the internal combustion engine. Many improvements and refinements have been made during this time to perfect the several elements and thus to provide durability and low operating cost. These improvements have been particularly noticeable during the last ten years with the greater use of both rail cars and locomotives equipped with internal combustion engine power.

Efforts have been successfully directed toward progressive reduction in weight of electric equipment. The accompanying chart is the result of a survey of the weights of a large number of equipments for the purpose of indicating a trend in the weight of electric transmission. Due to improved designs and manufacture, the weights of generators, control and motors have been consistently reduced and further reduction may reasonably be expected.

Mechanical transmissions, especially if construction is attempted for the larger sizes, may be expected to increase in both weight and cost due to demands for the automatic features which are inherent in electric drive. No comparison with electric transmission can be made, since no mechanical drives have been placed in commercial production in the sizes now being handled by Diesel electric equipment.

The low maintenance cost, which is a feature of electric transmission, is inherent in electric drive, due to the sturdy and durable construction customarily employed in electrical apparatus. A continuous study of the design problems in the construction of this apparatus has enabled the manufacturers to supply a vastly superior equipment at a price which is entirely consistent with the effectiveness of its performance. With this quality construction is also included long life with a resulting low rate of depreciation.

Briefly, then, we may reasonably claim for electric transmission:

1. A flexibility not available by any other method.
2. As a result of this feature a maximum utilization of the available power of the Diesel engine.
3. A rapidly descreasing margin of weight differential with a non-existent but hoped for mechanical drive.
4. Low maintenance and long life.
5. Competitive efficiency, full range of operation considered.
6. Reasonably low cost for service performed.

Weights of Typical Generators for Rail Cars

Date	Wt. lb.	Hp.	Lb. per hp.
1923	3050	225	13.5
1925	4300	275	15.6
1926	5050	300	16.8
	6900	400	17.25
1929	5600	400	14.0
1933	8500	600	14.0
1934	10950	900	12.0
1935	12000	1200	10.0

Weights of Rail-Car Motors

Date	Wt. lb.	Hp.	Lb. per hp.
1926	4700	150	31.3
1928	6400	240	26.6
1930	6400	240	26.6
1931	6400	240	26.6
1932	6400	250	25.6
1933	6500	360	18.0
1934	5400	340	15.7

Recent Type of Diesel-Electric Locomotive

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended November 9 totaled 653,525 cars, an increase of 58,735 cars or 9.9 per cent as compared with the corresponding week of 1934 and an increase of 70,452 cars, or 12.1 per cent, as compared with 1933. All commodity classifications showed seasonal decreases as compared with the week before, but all except coal and live stock showed increases as compared with last year. The summary, as compiled by the Car Service Division of the Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, November 9, 1935

Districts	1935	1934	1933
Eastern	139,546	128,064	124,502
Allegheny	123,214	110,476	108,564
Pocahontas	48,621	42,293	39,404
Southern	92,598	88,982	84,684
Northwestern	85,745	74,849	71,837
Central Western	107,611	96,902	102,877
Southwestern	56,190	53,224	51,205
Total Western Districts	249,546	224,975	225,919
Total All Roads	653,525	594,790	583,073
Commodities			
Grain and Grain Products	30,592	27,266	27,921
Live Stock	18,930	23,085	21,915
Coal	124,533	126,344	122,536
Coke	6,715	5,485	5,798
Forest Products	27,702	21,394	23,990
Ore	15,797	6,852	8,729
Merchandise L.C.L.	164,511	160,014	166,103
Miscellaneous	264,745	224,350	206,081
November 9	653,525	594,790	583,073
November 2	680,662	613,048	614,136
October 26	707,826	624,808	642,423
October 19	732,947	640,727	657,005
October 12	734,274	636,999	670,680
Cumulative Total, 45 Weeks	27,354,529	27,105,230	25,444,370

Car Loading in Canada

Car loadings in Canada for the week ended November 9 totaled 52,218, as against 52,177 for the previous week and 51,228 last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
November 9, 1935	52,218	22,455
November 2, 1935	52,177	22,715
October 26, 1935	52,800	21,809
November 10, 1934	51,228	19,817
Cumulative Totals for Canada:		
November 9, 1935	2,047,163	958,501
November 10, 1934	2,019,290	965,322
November 11, 1933	1,754,258	828,355

Welded Underframes on Lehigh Valley Cars

THE Bethlehem Steel Company has recently built at its Cambria plant, Johnstown, Pa., 250 all-steel gondola cars for the Lehigh Valley. Of this lot of cars 135 have welded underframes, 125 being of the conventional type, and 10 equipped with Duryea cushion-type underframes. The cars referred to are mill type gondolas with solid bottoms, low fixed sides and drop ends. They are of A.A.R. Class GM and bear Lehigh Valley numbers from 31300 to 31549, inclusive. Measured on the inside, their length is 50 ft., width 9 ft. 6 in. and height of sides 4 ft., which provides a volumetric capacity of 1,900 cu. ft., level full. The cars have a nominal weight capacity of 140,000 lb. and are equipped with four-wheel trucks having 6-in. by 11-in. journals.

The cars with welded underframes have a light weight of 54,000 lb., which permits a load limit of 156,000 lb. When loaded to capacity the ratio of revenue load to total weight is 74.3 per cent. The employment of welded underframes is said to reduce weight and provides a somewhat stiffer structure.

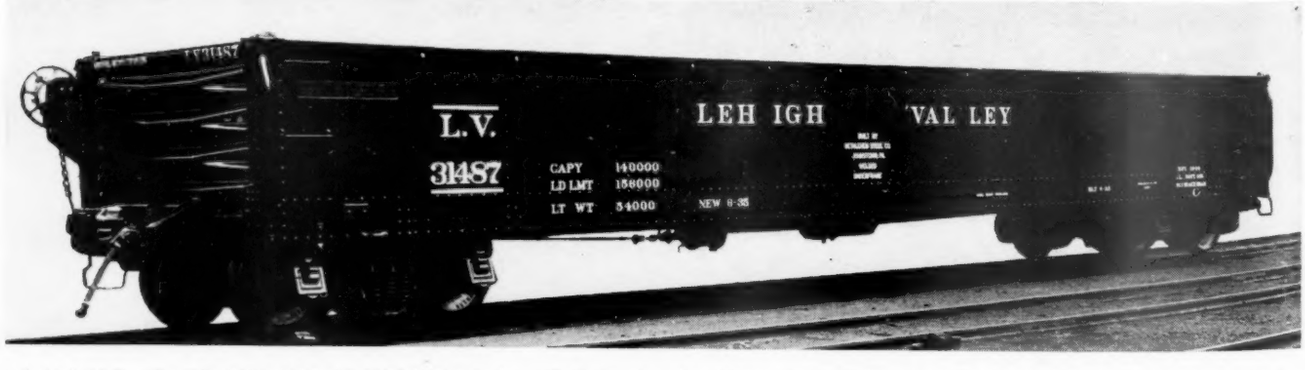
To expedite the fabrication of these welded underframes it was found necessary to make certain changes in shop procedure and to install new equipment which, in general, included a surface table 210 ft. in length, made up from 8-in. I-beams laid parallel on a concrete foundation; various jigs; pantograph flame-cutting units, and special trunnions in which to suspend the underframe assembly during the finish welding operations.

In fabricating a welded underframe the first operation consists of setting up some of its component parts on the surface table which, in itself, is a type of jig in which the center sill, striking castings, separators, and body-bolster center braces are placed in position. These parts are here merely tack-welded in place, after which the assembly is moved to the next bay where the horizontal surface welds are completed.

From this bay the assembly is moved to the next position for cambering and cover plating. After these parts are skip welded the assembly is then moved to its next position for fitting the necessary crossties, bolsters and end sills to the center sill and tack-welding them in place. Before the assembly is moved from this bay all floor supports are also tack-welded in position.

Up to this point all welding operations are confined to plain surfaces that are parallel to the surface table. In order to permit finish welding operations to be carried on in a horizontal plane, the underframe assembly is now suspended between trunnions, whose shafts are

(Continued on page 668)



Lehigh Valley Drop-End Gondola with Welded Underframe Built by the Bethlehem Steel Company at Johnstown, Pa.—Inside Length, 50 ft.; Width, 9 ft. 6 in.; Height of Sides, 4 ft.; Load Limit, 156,000 lb.; Weight, 54,000 lb.

Merge Railways into 20 Systems*

Such grouping essential to efficient operation under modern conditions—British experience shows labor and other interests can be safeguarded

By Ralph Budd
President, Chicago, Burlington & Quincy

THE basic theory upon which railways are regulated has had to be altered completely in the last fifteen years. The Transportation Act, 1920, was, at the time of its enactment, probably as constructive and carefully thought out a piece of legislation as could be devised. It recognized the public preference for private ownership and operation, with governmental regulation and supervision. It included a provision for the fixing of rates so as to maintain credit and generally to foster and develop transportation by railway. The basis of this legislation, however, was the accepted belief that railways would continue to enjoy a monopoly of the overland transportation of the country, and that rates always could be fixed at such levels as would insure sufficient earnings. In the short space of ten years the whole foundation of that theory was swept away. Instead of having a monopoly the railways are subjected to about the most severe competition of any industry.

The "Emergency Railroad Transportation Act, 1933" recognized the danger of financial failure of the railways, the fear of impairment in railway service and the losses which other lines of business, as well as nearly all individuals, would suffer in consequence. The Emergency Act had for its purpose the investigation of the railway problem with a view to assisting the carriers in effecting economies and in solving their financial difficulties. Appropriate legislation was to be recommended. The Act recognized the sound principle that railway recovery must rest on economical operation and in its administration emphasis has been placed upon the common use by several roads of the same railway property, thus avoiding unnecessary duplication and waste. A parodoxical feature of the Act as finally passed is that it contains a limitation upon reduction in railway labor forces, which tends to nullify the other features of the Act and prevent that being done which purports to be its main objective—economy.

No Excuse for Enforcement of Wasteful Methods

I have reached the conclusion that whatever other things may be done to promote the transportation of persons and goods in this country, one thing is absolutely necessary for success, and that is, that transportation must be performed in the most economical and efficient manner possible. Wastefulness and the employment of labor forces or capital that are not needed must not be condoned. A sustained revival of business and the accompanying increase in volume of traffic throughout the country would be of great benefit, but it would not be of as much benefit to the railroads in the way of net income as similar revivals of business have been in the past. The reason for this is that railways will not again carry all, or nearly so much, of the total volume of transportation as they once carried.

There has been indeed a substantial increase in the amount of business transacted in this country in recent months but the railroad industry has been lagging behind other types of business for more than one reason. First, various forms of competitors, such as trucks, pipe lines, private automobiles, buses, airways, etc., are accounting for a very large amount of transportation. Second, the business revival, to date, has been more pronounced in "consumer goods," which are more adapted to the use of trucks than are heavy and bulky commodities upon which the railways largely rely. Third, the rates and fares of freight and passengers carried by the railways have been reduced so much that the increase in volume does not reflect a corresponding increase in revenue.

Revenues Not Properly Reflected in Income

In addition to all this, the speeding up of freight trains has made it impossible to control ton-mile costs as effectively as in the past, and this, together with increases in costs of materials and wages, has prevented a large proportion of the total revenue from being converted into income. The greater part of the passenger traffic has left the railways for the highways. It is doubtful, indeed, if the volume of freight moved by rail will be as great in the future as it has been in the past because of the evolution in transportation and also in manufacturing, by reason of which a high standard of living may be sustained without the movement of as much bulk freight as formerly was necessary. The decentralization of manufacture, the use of electrical power, reduced agricultural production, and the decline in exports, all tend toward minimizing the handling of bulk freight. It seems at least quite probable that the volume of railway traffic per capita will not come back to what it was previously.

If we may assume that the success of the railways in the future must rest upon economy and efficiency of operation, then how to promote these ends should be the chief concern of the public as well as the officers charged with railway administration. As a matter of fact, it is also in the real interest of the employees to have efficient and successful operation because only in that way can the maximum of traffic be secured, and hence the maximum of employment be afforded. Only if the industry itself is on a sound basis can the long-time interests of the employees be best served. The Federal Coordinator of Transportation, Joseph B. Eastman, has announced repeatedly his conclusions that avoidance of duplication and ultimate economies are most desirable.

When it comes to ways and means of effecting these economies there is room for wide difference of opinion. There can be no question but that all of the railways have improved their standards and methods very greatly within the last few years. That their service has been improved correspondingly is well known and evidenced by the much faster schedules for both freight and passenger trains. It may, perhaps, be taken for granted

* From an address before the Chamber of Commerce, Kansas City, Mo., on November 13.

that each railway management will do its utmost to make the best use of the property in its control. Other matters beyond the control of management but seriously affecting the railway and transportation future are now the subjects of legislative and regulatory consideration. They deal with the larger aspects of the situation, such as the relationship between highway and railway transportation; the question of equality of treatment at the hands of the public; possible correlation of these forms of transportation; the most advantageous use of all the railway property, considering it as a national system; and, finally, the possible resort to government ownership of the railways.

Co-ordinator Eastman has discussed three possible courses which may be summarized as follows:

First, the common use by the railways of one another's facilities for the purpose of economizing in capital expenditures, maintenance, and operation, having in mind especially the common use of terminal properties;

Second, the unification of railways on a large scale, i.e., corporate consolidation into a few systems; and

Third, Government ownership.

The first two of these are normal processes which have been under way ever since the beginning of railways. Except for the restraint of laws and regulations, they would have gone much farther toward ultimate consummation than has been the case. The first, that is, the common use of railway property through rental of terminals and trackage, always has been popular with the railways and a great deal of money has been saved by joint facility agreements.

Joint Facilities an Effective Economy Measure

As a rule passenger terminals in the larger cities are owned in common and operated for the joint benefit of the constituent lines. The same has been true of freight terminals to a limited extent. There are many miles of track whose joint use by two or more roads has avoided the building of additional trackage. In my opinion the processes by which common use of railway facilities have advanced are no different from those which apply to all other business transactions, that is, two or more companies which find it advantageous to use the property of one or more jointly, have arranged to do so under mutually satisfactory agreements. As an evidence of how extensive this practice has been, the Burlington makes use of the property of others in 489 instances, and other railways make use of Burlington property in 492 instances, so the Co-ordinator's suggestions in this respect have been in effect for many years and at many places. But the extent to which he has suggested carrying terminal unification and the manner of bringing about the arrangements are different. Many negotiations for additional joint facility agreements between groups of roads were under way when the Emergency Act was passed in 1933, and the actual effect of this law was to discontinue those discussions because of the desire under that Act to make common use of terminals on a larger scale. This stopped the progress that was being made by the various roads at several places.

Another thing which has prevented progress being made is that while theoretically promoting co-ordinations, the new law actually makes them difficult, and robs them of incentive by preventing a reduction in the number of employees. My own feeling toward this particular activity is that in general the most favorable opportunities for common use of terminals have been availed of, if the present large number of individual and independent railways is to prevail. This should be kept in mind when considering the rather slight progress that has been made under the Emergency Act. I believe the self interests of the railways involved can be relied upon to advance the negotiations for additional joint facility arrangements if they are given an opportunity to work the matter out as natural business procedures. This will insure that the quality of service is maintained and the efficiency is improved. There is a way to reduce the number of terminal operations and that is by reducing the number of railway companies.

It so happens that Kansas City is one of the large centers which was chosen for an experiment in co-ordination of all terminal facilities. The subject has received a very long and thorough investigation. My belief is that the railways should resume negotiations themselves by groups, with the hope of consummating such of the arrangements as are recognized to be of mutual advantage to the railroads and the shippers. I believe that more beneficial results may be expected from this method of approach than by an attempt to bring about more or less arbitrarily what might be called a grand co-ordination of all Kansas City terminal properties.

Consolidation Holds Most Promise

The second of the Co-ordinator's possible courses, that of extensive consolidations, appeals to me as being the one which holds the most promise of really substantial economies and operating advantages, as well as opportunity to improve the service. In that way, and only in that way, can the best use be made of the existing railway plant of the nation. To maintain as many lines as now are maintained between practically all of the important cities obviously is more expensive than limiting operation to the most efficient routes. Reducing the number of railways from 866 operating companies to about 20 would eliminate a tremendous amount of overhead organization, would enable the traffic to be concentrated on the most favorable routes, using the best parts of the several lines as they now exist, and would automatically bring about the most desirable type of co-ordination of terminals, namely, co-ordination under a few strong ownerships. Competition would be preserved, and, indeed, the desirable features of competition from the public point of view would be enhanced because the lesser number of strong roads, able as well as willing to give good service, would insure a higher quality of competition than can be obtained from too many lines competing with each other, and weakening each other by the excessive competition. All of the indispensable advantages of private operation would be preserved.

As I have said before, a substantial increase in volume of railway traffic would go a long way toward reviving their failing credit, but in view of all of the forces that have been at work, and are at work to reduce the volume of traffic that will move by rail, it is clear that too many railway companies and organizations are being maintained, as well as too many miles of railway, to carry economically the present and prospective volume of traffic. The very fast freight schedules necessitate the running of more small trains than would be necessary with large railway systems, each of which would embrace several existing lines. It would be practicable then to handle the minimum number of small fast trains. Some of the less urgent traffic would be moved in larger trains and thus the ton-mile cost of transportation would be reduced.

Probably the lightening and speeding up of freight trains has become the most serious deterrent to reduction in railway transportation costs. We may as well face the fact that the fundamental of getting low ton-mile costs has not been successfully supplanted by any new ideas and no agency for reducing unit transportation cost

has ever equalled the heavy freight train. By heavy freight train I mean the train that carries heavy tonnage of pay freight. The recent advancements in metallurgy and the use of high tensile strength alloys will make it possible to build lighter cars that will carry heavier loads. These are features that fit into any and all plans for economical railroading because they are fundamentally sound and are along the same line of progress as grade and curve reduction, larger and more efficient locomotives, etc.

If it may be granted that railway consolidations, under proper safeguards to the public and to the employees, would be desirable, it is most important to try to find ways and means for bringing them about. The definite policy of private ownership and operation of the railways should be reaffirmed, and enactments made which would encourage and perhaps eventually enforce consolidations. It seems to me that the same calibre of statesmanship which resulted in the passage of the Transportation Act, 1920, if applied to the problem of determining how to accomplish what is desired, could produce an effective plan of procedure.

Such a plan was carried out successfully in England following the World War, and there, the policy having been decided upon, public tribunals were set up which carried out the task of appraising the values of securities on the existing roads, and the equivalent of securities in the new companies for which the old would be exchanged. In this way 120 railways were amalgamated into 4 without any long delay or serious litigation. The rights of employees were protected, and the result, as authoritatively reported, is that the railways of England are operated much more effectively and economically now than they could possibly be if all of the old companies were maintained.

There is, of course, ample precedent in this country for the consolidation of railways. All large systems are made up of a multitude of smaller companies. The Burlington, for example, comprises what were two hundred or more companies, and the same is true of other roads of comparable size. Certainly no one would argue that it would be an improvement to disintegrate our present large systems into the many small units.

Having concluded to consolidate certain mileage, there would remain two great obstacles to be overcome. The first is what to do with railroad labor, and the second is, what to do with regard to the owners of securities which are outstanding against the existing properties. I have great respect for the rights of both parties here involved. Discussing first the question of the securities, it would seem that there should be available in this country the necessary individuals who could qualify as to ability and integrity, to whom could be assigned the duty of appraising the values of securities for purposes of amalgamation as was done in England. Of course appropriate legal machinery would have to be set up to deal justly with dissatisfied security owners, and provision made for hearing those who question the proposed disposal of their properties.

Employees Should Be Protected

The law should state the principles for determining the rights of railway employees to compensation on account of their services no longer being needed. Proceeding upon these principles it should not be impossible to determine upon a fair settlement, and here, again, a tribunal composed of those qualified to do so should be able to adjudicate any disputes which could not be composed by the parties according to principles in the law.

The settlement with the employees for claims arising out of consolidations would, of course, be a serious burden for some years, and during that period would prevent the realization of the ultimate economies. Just what period would be required to liquidate these claims is problematical, but through the natural course of events, that is, by transfer to other work, death, disability, resignation, etc., the burden would be lightened gradually. The probable rise in the volume of traffic would absorb some, so the period of transition probably would be well over within seven years. The cost during that seven years, if paid currently, would prevent realization of the economies. But if consolidation should be adopted as the ultimate governmental policy toward the railways, it would seem to be an entirely appropriate function of government to encourage the movement by providing the funds for these liquidations and permitting the repayment by the railways to be postponed until some time later. Extensive expenditures incident to the physical consolidations and adjustments in operation will occupy the managements, and will also provide substantial employment probably for two or three years.

These suggestions may not seem practical at present. Perhaps the burden of capital expenditures which would be incident to consolidations, and the compensation of employees who no longer would be required, would operate to prevent wholesale consolidations. The idea seems, at least, to be worth considering. In any event the evident and admitted advantages justify encouraging consolidations of roads in a more positive and affirmative way by the enactment of laws which would make them easier of accomplishment. It seems quite certain that if a few of the larger systems could be unified, that would tend to influence others to do likewise, and the compulsory feature might not be necessary.

Government Ownership Would Add to Difficulties

A study of the results of operation in the last few years, and the failure on the part of the railways to reflect the larger volume of business that is being handled throughout the country, justifies the fear that unless something of a drastic nature is undertaken the railways of this country may drift into the third category mentioned by Co-ordinator Eastman, namely, that of government ownership and operation. I have used the expression "drift" into it because there has been no expression of public favor for government ownership, but quite the contrary. There are those who believe their interests would be furthered by having the railways taken over by the Government, but not very many. The danger apparently is that through loss of traffic to highly subsidized competitors, the necessity of providing more expensive service, and failure of credit to finance necessary improvements in order to keep their plants at the highest point of efficiency, government ownership may overtake the railways quite by accident rather than by design.

I shall not discuss today the several reasons why I believe government ownership and operation would not be advantageous; why I believe that it would greatly increase the cost of transportation and incalculably lower the standard of service. It seems sufficient to say that if legislative and regulatory authorities cannot permit to be done the things which enable private initiative to carry on successfully, it is obvious that, if in direct charge of railways, similar authorities would not be able to control expenditures. To an even less extent could a government railway plant be shrunk to fit the requirements of a shrinking business, or altered to keep up with a constantly changing one.

Whether the railways are to be owned privately or

by the government, the public ultimately must pay for the service, either in carrying charges or in taxes to make up the deficits. Whatever is done by State or Federal laws or administration to increase cost of transportation, therefore, is against the public interest. Such proposals as the arbitrary limitation of train length, fixing the number of men that must be used on a train regardless of necessity, placing track inspection under government authority, and many others which would add unnecessarily to the cost of transportation, should be avoided.

Talks such as this do not change people's opinions if their minds are made up, but I believe that people generally are of an open mind at present as to what is the best policy toward the railways. At least I think comparatively few people have reached a conclusion as to what definite steps should be taken by the government toward solving these problems. If we can have discussions which recognize frankly the problems before us and look at them as much as possible in the light of the whole national interest and necessity, and as little as possible in the light of their purely local effect, we may avoid being forced, because of emergency or because of insufficient or incomplete understanding, into something that we do not want.

In the meantime, the railways are going to carry on as they are carrying on today, giving a better service than they have ever given before. They will meet competition on the basis of rates and service—the only sound basis. The moderate amount of regulation placed upon their highway competitors by the recently enacted laws will afford some relief, although comparatively slight at the beginning. The railways have faith, and even more, they hope that an enlightened public opinion finally will recognize the necessity for giving them equality of opportunity with their competitors.

I believe that railway activity gradually will be enlarged to include other forms of transportation. The pick-up and delivery of freight which will be inaugurated soon will be a step forward. Railway ownership of highway operations will be enlarged. This will be preferably joint ownership by several railways so that no one railway will be in the position of monopolizing the franchises on public highways to the detriment of others. There is no reason why private operation of railways should break down. A solution of the railway problem should be found, somewhat along the lines of the evolution I have indicated, perhaps by a gradual consolidation of railways. Finally, I am confident that common carrier service in this country, through the application of science and invention to the various problems, will keep pace with the advances made by other industry.

Welded Underframes on Lehigh Valley Cars

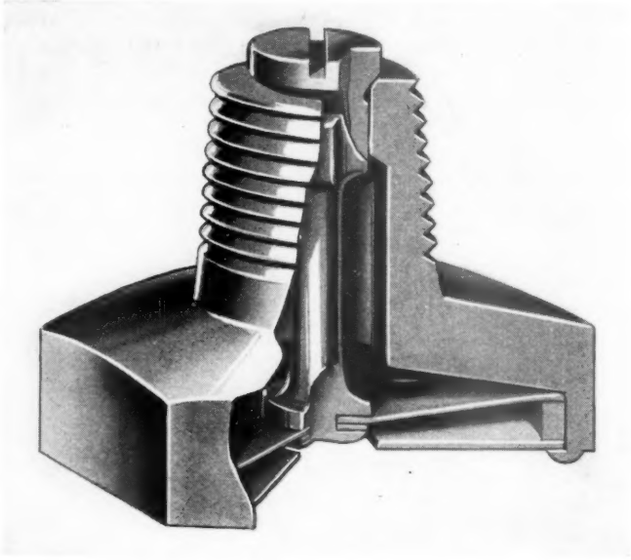
(*Continued from page 664*)

extended into the openings of the coupler striker castings. While in these trunnions the underframe section is revolved by means of a hand-powered worm drive on the one trunnion so that the welders may perform their work with the section to be welded brought to a horizontal position.

When this welded assembled section is removed from the trunnions it is a completely welded underframe which is then taken to the erection shop for the completion of the car.

Springless Automatic Drain Valve

THE illustration shows a springless automatic drain valve recently developed and placed on the market by the Wilson Engineering Corporation, Chicago. It is designed for use at the low point in any exhaust steam line, pipe or passage, which must be drained of condensate to prevent freezing when not in use. The particular feature of the device is the provision of a drain valve operated by temperature change rather than by pressure as used in the conventional spring-type automatic drain valve. By this construction a sensitive valve control is obtained which is said to operate reliably at pressures too low to close the spring-type valve.



Wilson Springless Automatic Valve for Draining Locomotive Steam Pipe Lines

In the design of this new valve a Spencer bi-metallic disk is used to motivate the valve, thus the valve will remain closed against the escape of steam vapor regardless of pressure and as long as the requisite temperature is maintained. When the temperature falls below the critical setting, the valve opens against low pressures.

In service, the benefits of a thermostatically-controlled valve become at once apparent. Located in exhaust passages or in exhaust steam lines, there will be no obscuring of vision due to a slightly leaking throttle. When the temperature falls below 150 deg. F. the valve opens, drains out the cooled condensate and immediately closes if steam or hot water follows. In locations where carbonized oil might cause a spring-type valve to become locked in a closed or open position, this new valve is said to be self-clearing.

THE RAILROAD CREDIT CORPORATION has announced that it will make a liquidating distribution on November 30 of $2,207,655, or 3 per cent, to participating carriers. Of this amount, $1,161,334 will be paid in cash and $1,046,321 credited on obligations due to the corporation. This will be the twenty-second distribution that has been made to participating carriers since liquidation began on June 1, 1933, and will bring the aggregate returns to 39 per cent of the fund developed through the pooling of the emergency charges allowed under Ex Parte 103.

Any-Quantity Livestock Shipping Plan Successful*

By H. D. Timberlake†

THE any-quantity livestock shipping plan is an arrangement catering to the farmer who has only a few head of livestock to ship at any one time. It is also helpful to the feeder, as it enables him to go into his feed lot, sort out a few head of stock when they are ready and ship them to market by rail instead of by truck. The livestock industry is not unlike other business in that it has undergone changes during the past 10 or 15 years. The old time buyer has faded out of the picture, and shipping associations are not as plentiful as in the past. Big feeders are also scarce. On the other hand, every farmer has a few head of livestock to dispose of during the year in l.c.l. lots and if the railroads are to get back the livestock business, they must provide a service for the l.c.l. shipper of livestock who is not now permitted to use the railroads.

The Missouri Pacific saw this picture some time ago and on November 1, 1933, established an any-quantity carload rate on livestock, following which farmers along the lines of that railroad were for the first time not only permitted but solicited to use their rails. This service was first established between Charleston, Mo., and the National Stock Yards at East St. Louis, a distance of 181 miles, serving 25 stations. The response from the farmers was such that within a short time this service was extended to cover the entire Missouri division, a distance of 425 miles, serving 75 stations.

The success of this plan on the Missouri division was such that farmers along other branches began to make requests for the same service and on June 18, 1934, the any-quantity plan was extended to the Eastern division of the Missouri Pacific, from Sedalia and Malta Bend, Mo., to the National Stock Yards. It was later extended along the main line west to Holden, Mo. It has also been extended several times from Arkansas points to the National Stock Yards. On November 1, 1935, this service will have been in effect two years, during which time it has grown from 181 miles to 1,340 miles and from 25 stations to 380 stations.

Other Roads Establish Service

On June 1, 1934, the Missouri-Kansas-Texas also put this plan into effect from Sedalia, Mo., to the National Stock Yards, a distance of 227 miles covering 26 stations. About this time the St. Louis-San Francisco, which had made a study of this plan and had watched its growth on the Missouri Pacific and the Katy, decided that it too would put this plan into effect from Hoxie, Ark., on its River division, a distance of 259 miles covering 35 stations.

As elsewhere, this plan was a success, so in June of this year the Frisco made one extension covering 900 miles and 295 stations and is now operating this plan over a total of 1,100 miles with 350 stations. This makes a total of 2,667 miles over which the any-quantity plan is now operating into the National Stock Yards via these three railroads, serving a total of 756 stations. Possibly as many more stations are being offered this service to the Kansas City, Mo., Wichita, Kan., and Ft. Worth, Tex., markets, a grand total of 3,024 stations that now have this service out of a possible 91,000 stations in the United States. At the present time this plan is being operated by the railroads only one day per week, while competing trucks are furnishing a service six days per week. There are not only great possibilities for increasing revenues by adopting this plan more widely, but there is plenty of educational work to be done to change the farmers' shipping habits.

2,500 Cars Shipped

The expression is often heard that, "The farmer will not bring his livestock into the station." This is a false impression. During the time this plan has been in operation, more than 2,500 cars of livestock have been handled into the National Stock Yards, with a tonnage well over the 38,000,000 lb. mark. In handling these 2,500 cars, railroad officers, station agents, train men and section men have contacted no less than 75,000 farmers. By these contacts the railroads were not only able to secure additional revenue on livestock, but they were also able to obtain valuable information for the passenger department. These same officers were also able to iron out many misunderstandings among the farmers living along the right of way who should be customers of the railroad.

This plan is a success because it fits into the present day stock shipping methods of the farmer. Unlike other business, this plan does not create competition among the railroads, but it simply takes care of the shipments around each station and along the right of way, without encroaching on the territory of other railroads; also, it produces the same revenue per head that the railroads received before they had competition.

Several Ideas Tried

Before the attempt was made to bring livestock back to the rails under the any-quantity plan, a great many ideas were tried. Rates were reduced in spots and attempts were made to capture this business by establishing lower minimum weights. This proved a failure. Other people had the idea that this business could be retrieved by encouraging the establishment of small country markets, calling on the railroads to advance the capital for such ventures. The establishing of these small markets created a new competitor for the railroads, and brought about competition between towns. Long ago each town had one or more local livestock buyers. When the farmer brought his livestock into town, these local buyers bought it and paid cash. The farmer, therefore, had money to spend with the merchant while in town. In the new order of things, the farmer has gone further afield, particularly with his livestock, and the small towns have lost the benefit of his trade.

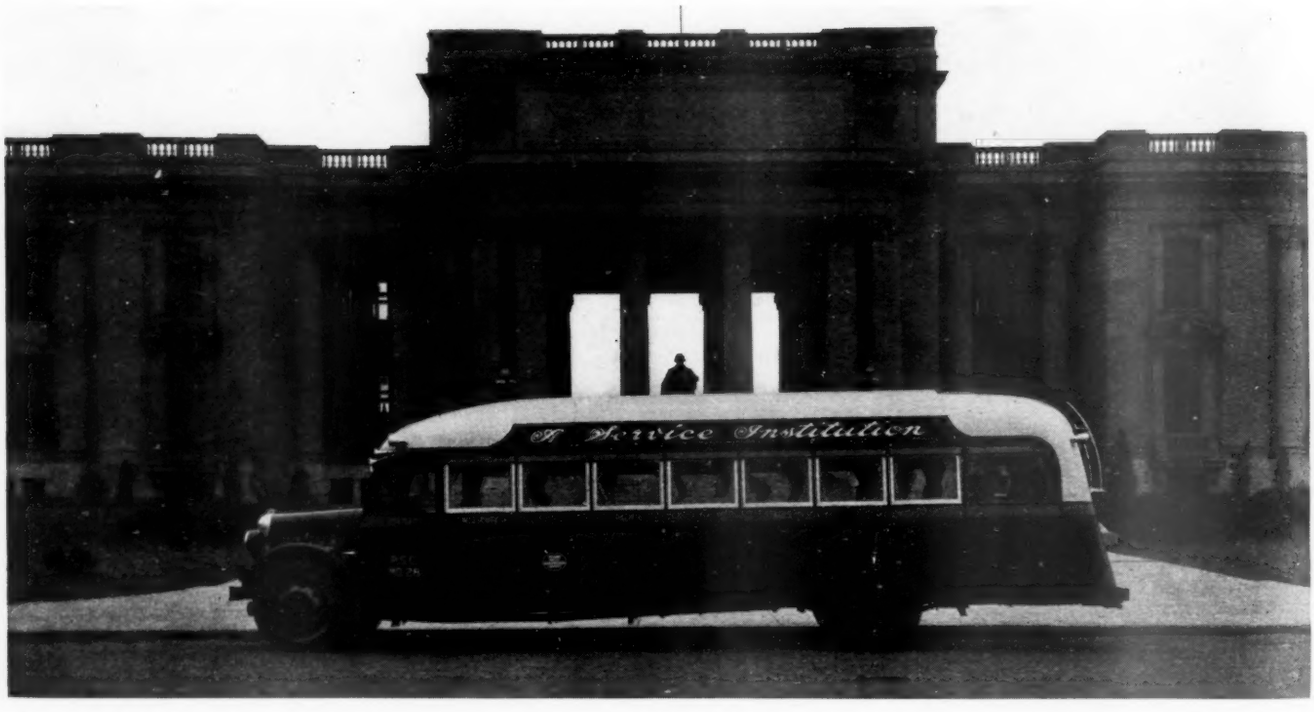
When the Frisco established its any-quantity service at Rogers, Ark., the secretary of the local chamber of commerce saw the possibility of getting the farmer trade back into his own home town. He immediately advertised to the farmers in his trade territory to bring their livestock into Rogers for shipping under the any-quantity plan, offering, through the bank, to advance up to 50 per cent of the value of the livestock to those needing ready cash. This money was spent with the merchants in Rogers and had a better effect than if Rogers had tried to establish a small market at the expense of the Frisco.

Other advantages of this plan are the fact that, where necessary, only one pen will be needed to serve and handle all classes of livestock, and the railroads are not called upon to build big shipping yards and equip them with scales. This reduces the capital expenditure necessary for the railroads to get back the farmers' livestock business.

* From an address before the Ohio Transportation Advisory Board at Indianapolis, Ind., on September 17.

† Traffic Manager, East St. Louis Junction Railroad, East St. Louis, Ill.

Motor Transport Section



One of the New Streamliners of the M. P. T. Company

Missouri Pacific Establishes New Western Routes

Improved service, expansion and intensive employee solicitation insure success of subsidiary bus line

THIS year the Missouri Pacific Transportation Company has materially extended its service to the West, having established a new route from Kansas City, Mo., to Pueblo, Colo., paralleling the rail line of the Missouri Pacific, of which the M. P. T. Company is a wholly-owned subsidiary. This affords through service from St. Louis, Mo., to Colorado points. In addition, this company joined with the Burlington Transportation Company and the Denver, Colorado Springs & Pueblo Motorway in establishing a bus line over the scenic James Peak, or Moffat Tunnel, route from Denver, Colo., to Salt Lake City, Utah. These new routes make it possible for bus travelers to the West to see the best scenery of the Rocky Mountain area, including Pike's Peak, James Peak and short side trips to the Garden of the Gods, as well as other Colorado points. Within the last few months the Denver & Rio Grande Western has, through its subsidiary, the Rio Grande Motorways, inaugurated bus service along the line of the D. & R. G. W., making it possible for a traveler to go via the James Peak route and return via the Royal Gorge route, or vice versa.

Between St. Louis and Pueblo the new service is provided by modern, comfortable, streamlined buses recently purchased. These buses operate through without change. At Pueblo convenient connections are provided for making the trip either via Colorado Springs and Denver and thence over James Peak to the west, or directly west from Pueblo via Salida, and Tennessee Pass, Glenwood Springs and Grand Junction.

Coincident with the establishment of the Colorado-Utah service, an additional line was added from Kansas City, St. Joseph, Mo., and Atchison, Kan., to Beloit, Kan., along the line of the Missouri Pacific's Northern Kansas division. In addition, a recent extension has been made from Natchez, Miss., to New Orleans, La., via Baton Rouge, which cities are also served by the Missouri Pacific Lines. With these additions, the Mis-

souri Pacific Transportation Company serves a wide territory and compares favorably in size and scope with the largest of the other exclusively rail-controlled bus lines in the United States.

A Steady Growth

The Missouri Pacific was one of the first rail lines to appreciate the value of bus service paralleling its rails and has established a system that now serves 10 states in the Central West and Southwest. Beginning with a few short train replacement lines in 1929, the Missouri Pacific Transportation Company has expanded along its parent railroad until it now operates more than 5,100 miles of bus routes, extending from St. Louis, Memphis, Tenn., and New Orleans on the east, to Salt Lake City on the west, including such important centers as Kansas City, Omaha, Neb., Lincoln, Little Rock, Ark., and others. From the St. Louis and Memphis gateways its lines now serve the entire Southwest, terminating in the Rio Grande Valley in Texas. The company will operate more than 8,000,000 bus miles in 1935, and handle nearly 2,000,000 passengers. To handle this business a large number of the latest type buses have been added to its fleet of equipment.

Since the organization of the Missouri Pacific Transportation Company, 115 modern type buses have been purchased. In addition, a number of the buses now in service, acquired in the purchase of other lines, have been thoroughly rebuilt in the M. P. T. shops, modernized throughout and made the equal of new equipment. In order to avoid transfers by passengers enroute, since the fewest number of changes possible is always appreciated by passengers, the supervisory officers have exerted every effort to secure the maximum mileage for each bus, thereby reducing expenses and the number of buses required. The equipment consists of various makes of buses, it being the policy of the company to concentrate certain classes of equipment in each district, in order to reduce the stock of parts necessary to have on hand, as well as to increase the efficiency of the men.

Little Rock, because of its location as the center of operations on the system, was chosen as the site of the main shop and maintenance plant. At this shop there are facilities for the complete rebuilding of motor buses from the bare chassis to the finished product of the latest design in streamlined coaches. Other garages are scattered at strategic points for general service and such repairs as are necessary. There are two painting departments, one at Little Rock and the other at Kansas City where, at stated intervals, every piece of equipment is repainted and kept in the best possible condition. The

The M. P. T. Uses Modern Stations

Part of the St. Louis Fleet of M. P. T. Buses

general theory of attractive equipment bringing in additional passenger revenue has been amply proved by the M. P. T.

Co-operation from the Rail Staff

This company is particularly fortunate in having, in addition to its own boosters, a large soliciting staff in all of the employees of the railroad who acquaint themselves with the service of the highway subsidiary and assist in obtaining business for it. Without detracting from their efforts to solicit rail passenger traffic, these "boosters" realize the fact that there are many people who prefer motor bus service because of lower fares, the convenience and frequency of service, or because of its proximity to their home or hotel, where they may board the bus or alight from it. In order to obtain the most traffic, the transportation company has readjusted its schedules to determine the most convenient time on which the buses should operate, to agree with the wishes of the majority of passengers.

The rail superintendents and their staffs work closely with the transportation company, which has used the experience of the railroad departments in training bus employees in courtesy, safety and dependable service. On a number of the routes railroad dispatchers carry the movements of the buses on their train sheets, keeping the agents along the line advised as to the progress of the buses. This is a special help to bus passengers who are ready to make a trip or who are coming to the station to meet arriving friends. The management is mindful of the preference of patrons for clean, comfortable station facilities and, in addition to using railroad stations wherever possible, has expended and is still expending considerable sums to provide up-to-date bus stations at terminals.

Special Drive for Package Express Traffic

The company is making a special drive to increase the package express service by having an especially assigned motor coach operator make personal calls on all firms that might be able to use the expedited service given for light express packages. While there is no pick-up and delivery service, the consignee is immediately notified by telephone of the arrival of his package. Centrally located offices in each city and town are in charge of a bonded agent, insuring safety for express patrons. The principal articles handled in express service consist of automobile accessories, tires, medicines, films, flowers, bakery products, etc., in addition to daily newspapers.

The employees of the bus company, as well as of the railroad, aid materially in the solicitation of special chartered parties. Each of them is almost constantly in contact with friends who are associated with churches, lodges, athletic associations and many other organized bodies making frequent trips to nearby cities and towns. These chartered trips often fit in well with rail movements in connection with hunting and fishing parties, in that they can move to their final destination without breaking up the party.

Courtesy Pays

L. W. Baldwin, head of both the railway and the bus company, has always insisted that it should be the aim of all officers and employees to help patrons whether traveling or only asking for information. His instructions are that any service that can consistently be performed should be done with a smile, and, when these requirements have been met, the inscription on the buses, "A Service Institution," will have been lived up to. Passengers who have been subject to irritation during a trip are found to make the best customers and most loyal boosters when a courteous and reasonable regard has been shown for their complaints. Each bus employee has been impressed with the fact that there are many details that go to make up good service, such as courteous replies to inquiries, respectful treatment of passengers, especially elderly people, clean and comfortable equipment, prompt and careful handling of express shipments and a conscientious living up to every safety rule on the part of drivers. Most of the drivers in the employ of the transportation company have been in service for reasonably long periods of time and are thoroughly experienced, capable and reliable. As a result of an extensive campaign against accidents, most of the drivers have enviable records for careful driving. No driver ever becomes so old in the service that his schooling in safe driving is neglected. He must keep himself thoroughly familiar at all times with the safety rules under which he works. One special operating rule is assigned for study each day, and each employee is required to be able, at any time during the day, to give the gist of that rule. The drivers are also required to present themselves for complete physical examination at frequent intervals at company hospitals, thus assuring their physical fitness for driving service.

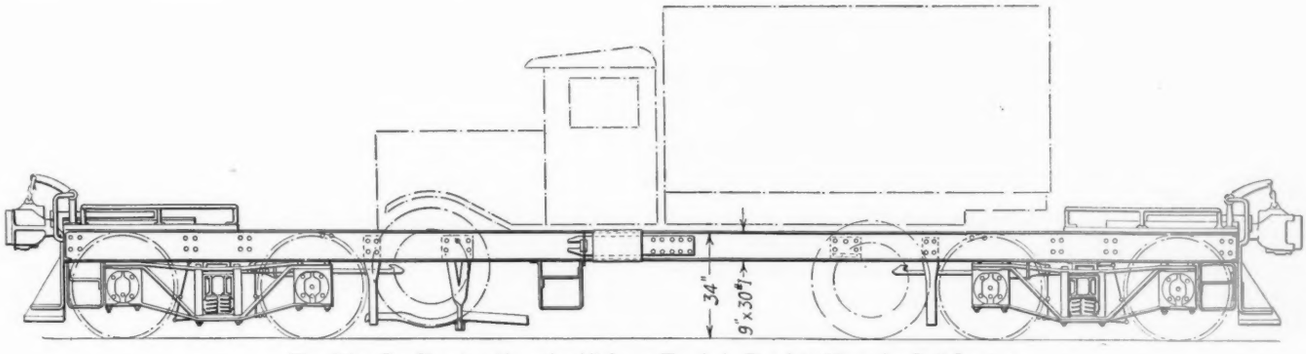
Clean and Comfortable Bus Interiors Attract Traffic

Short Line Turns to Rail-Highway Operation

Motor trucks supply the motive power both on rails and off on the Mound City & Eastern

THE Mound City & Eastern, a short line operating between Leola, S. D., and Long Lake, a distance of 20 miles, is now operated with motor trucks supplying all the motive power, both on the rails and off. By this means, after some years' operation as an ordinary steam railroad at a considerable deficit, has been converted into operating income, avoiding the abandonment of the line.

The system employed is the invention of the president of the railway, and it involves the use of motor trucks, which, when running on the rails, are incased in what is known as a pilot-car. This device is illustrated in the accompanying drawing. It consists of an underframe, with standard trucks. This underframe is separable, so as to permit the motor truck to be driven into it, and it can be adjusted to fit almost any size of truck equipment.



The Pilot Car Showing How the Highway Truck Is Fixed in Place for Rail Service

The Power Unit

Any commercial auto-truck which meets the length and breadth requirements of the pilot-car, and the horsepower requirements of the tonnage to be handled, can be used in this unit. Only a few additional accessories are required, such as coupling devices, air appliances and sanders, and these are easily applied. Each pilot-car is equipped with auto-wheel hangers, on which the front wheels of the truck are suspended. The rear wheels of the motor truck, which supply the driving power, rest on the rails. The tractive effort is dependent upon the auto-truck engine used, the gear ratios, and the size of the tires.

Several months' experience has convinced the railway that rubber provides greater traction on rails per load-pound than steel locomotive tires. The weight of the truck is so distributed by the elevation of the front wheels as to provide the maximum traction under pull and on grades. The tractive effort required with the auto-truck in place, at low speed, is 110 lb. on level track and 410 lb. on one per cent grades. There is practically no slippage of the driving tires, as the motor is killed under excess load before slippage occurs. The wear on the driving tires is about the same as in highway operation, with considerably less wear on the front tires.

The Equipment

The weight of the pilot-car, without the auto-truck, is 22,000 lb., and with the loaded truck in place, 17,000 lb. on the front truck and 13,000 lb. on the rear truck. The axle load is 8,500 lb. per axle of the leading truck, and 6,500 lb. per axle of the rear truck. The weight of the pilot-car was made substantial purposely to provide for close adherence to the rails at its high speeds and on curves. The weight has little or no effect in reducing the load capacity of the auto-truck on level track, since the pilot-cars are equipped with roller journal bearings.

Since the power unit handles trains of cars, brakes are important. The braking power of the unit consists of 85 per cent straight air, supplied by 6-in. by 6-in. cylinders on each car-truck, supplemented by a hand-brake operable from either the auto-truck or the car floor. The trailing load is provided with automatic air at 70 lb. train line pressure, and the 16 cu. ft. compressor is power-driven from the auto-truck. The main reservoir capacity is 13,500 cu. in. and the brake valves are mounted in the cab of the auto-truck.

Operation

The conversion from the rails to the highway and vice-versa can be effected at any highway crossing, and can be performed by an experienced operator in from 70 to 120 seconds. Two coupling devices are operated from the truck-cab by its driver and by a brakeman by hand on the pilot-car. Otherwise, no special facilities are needed.

When the auto-truck is in place in the pilot-car, its front wheels ride on a platform, consisting of two transverse bars, elevated about three inches above the top of the rail. The rigid coupling holding the motor truck

body in the frame, holds the rear wheels in alinement with the rails.

Only a short time is required to disengage the auto-truck from the pilot-car. The connection bars on both sides and the automatic draw hinge bar are released. Then, using the truck's own power, the rear unit of the pilot-car is left at one end of the highway crossing, the front unit is shunted forward to clear the crossing and the truck backs out of its cradle to proceed along the highway.

Reversing direction is easily accomplished. The car ends are designed alike and the front auto-wheel hangers can be attached to either end of the pilot-car, by detaching them from the frame and rolling them along the track to their proper place at the other end of the car. There is no need for wyes or turntables.

Character of the Line

The Mound City & Eastern was built five years ago, at a cost of $325,000, on the old roadbed of the Bismark & Ordway, which was started in the 1880's, but never completed. The line has a maximum grade of 1.5 per cent, and the sharpest curve is 4 deg. All of the curves except two are 3 deg. or less.

The limiting grade is a hill rising 336 ft. in 7.4 miles, with a maximum grade of 1.2 per cent and an average grade of 0.86 per cent. The wye tracks at each end of the line have a maximum curvature of 12 deg. Most of the line is laid with 70-lb. relay rail, the balance being 66-lb.

The line was built originally to handle coal, gasoline and building materials into the area served, and farm products outbound. The carload business consists of wheat and other small grains, hay, cattle, sheep, hogs, sand and gravel southbound, and coal, gasoline, lumber, cement, plaster and concrete pipe northbound.

The M. C. & E. owns no cars used in through business, getting its empties from the connecting Minneapolis & St. Louis on a per diem basis. The principal l.c.l. business consists of merchandise into Long Lake, and cream and eggs outbound. In addition to the lower costs of operation under the new system, a considerable tonnage of l.c.l. freight that was formerly moved by independent trucks is now handled by the railroad, in conjunction with the pick-up and delivery service at Long Lake provided by the auto-trucks on the highways, after they have served as motive power for the trains into Long Lake.

Operating, Maintenance and Overhead Costs

(Based on 10-mile unit costs, at a speed of 20 miles per hour)

Gasoline—2 gal. × 15¢	$0.30
Oil—½ qt. × 20¢	.10
Tires—1¢ per truck mile	.10
Grease, etc.—½¢ per truck mile	.05
Repairs (new plugs, grinding valves, etc.)	.05
Total material and fuel	$ .60
Engineer-driver $1 per hr. × ½ hr.	$ .50
Conductor-brakeman $0.80 per hr. × ½ hr.	.40
Roundhouse mechanic $1 per hr, × 1/10th	.10
Total Labor	$1.00
†Depreciation on auto-truck—5 year life—50,000 miles per year. $5,000 cost new	$ .20
†Interest on investment in truck, 5% average	.05
*Depreciation on pilot-car—10 year life—50,000 miles per year. $3,500 cost new	.07
*Interest on investment in pilot-car 4½¢ average	.03
Depreciation on garage and tools	.10
Investment in garage and tools—interest on	.05
Taxes and insurance	.05
Accounting, supervision and general expense	.05
Total Overhead	$ .60
Total all operating, maintenance and overhead	$2.20
Per mile	.22

† Cost varies, depending upon requirements and conditions.
* Cars placed on line under equipment trust plan or special arrangement.

Comparative Operations

The accompanying table gives the detailed cost figures of the new type of operation. The cost of the round trip of forty miles under steam operation was about $50, or $1.25 per mile, including enginehouse expense, while, with the auto-trucks as motive power, the cost is $10 per round trip, or 25 cents per mile.

Formerly, the locomotives were operated with a crew of five men, but, under present operations, the conductor is the only full-time man. When not engaged in train service, this man does a variety of other work, such as operating a motor-driven weed mower, assisting with the shop work and maintaining track. One or two section men are employed from time to time to assist him with the latter work. The motorman is a garage and repair shop owner at Long Lake, who works on the railroad by the hour as needed. The president of the railroad, in addition to inventing and building the pilot-cars, also operates the motor unit when the regular motorman is not available.

Under present operations, using 1½ ton trucks in the motor unit the time required with a tonnage train is an hour southbound and an hour and a quarter northbound. Three round trips per week are operated, except during the wheat shipping season, when a daily round trip is made. This schedule varies somewhat with the amount of business to be handled, four round trips having been operated in one day to handle the maximum business. On this particular day, by double-heading the power units, 23 empties and 23 loads of live stock were handled, the loads requiring only three trips, while the empties required four, because of adverse grades and strong head-winds. An analysis of this day's operations shows the following:

Total unit mileage—320 miles
Time—9 hr. line haul, 1 hr. switching
Av. speed—18 m.p.h.
Gasoline used—64 gal.
Av. per unit—5 mi. per gal.
Oil used—8 qts.
Av. per unit—40 mi. per qt.
Labor (2 men per unit)—40 man hr.
Gross tonnage—1,370 tons
Net pay tonnage—450 tons
Revenue ton-miles per hour per unit—405 ton-miles.

The heaviest load so far handled has been a 75-ton carload of concrete tile pipe.

The present auto-trucks used are of 1½ ton capacity. However, a 7-ton truck, with a rating of 125 h.p. and 11-in. tires will be delivered this summer. This truck will be able to handle 12 loaded cars southbound and 8 northbound. The cost of this new motive power unit will be as follows:

New truck-engine and chassis	$5,000
New truck body, equipment and accessories	1,000
New rail pilot-car	2,500
Total cost	$8,500

By the use of this improved equipment, it is expected to increase the operating income still further, in comparison with the operating deficit incurred over a period of years during steam operation. The use of the new motive power units has, in the midst of the depression, turned a short line facing abandonment into a prosperous property.

Canadian Pacific Wins Back Traffic

Rail-highway co-ordination, fast schedules and fast handling prove magnet for additional business

FAST schedules, fast handling at stations, combination of rail and highway service, together with the practical application of other comprehensive policies have been used by Canadian Pacific officers to provide a freight service with which the independent truck operator cannot compete on medium and long hauls. This development is the direct result of careful study, experience and finally the adjustment of freight services to meet the ever-changing needs of Canadian business. The combination of rail and road has resulted in a very definite saving per month over train costs, and has improved the service to a point where an increase of 83.4 per cent in tonnage of merchandise billed out was achieved in August, 1935, as compared with August, 1934, in spite of the fact that industrial conditions were unchanged.

Canadian railways for many years have maintained a storedoor delivery service in the larger cities and towns, but it was charged for in addition to the published tariff freight rate. This service was available to all shippers, and cartage rates were published in a tariff. Originally the published tariff charge covered practically all classes of freight, but later, many exceptions were made so that the service was used less. The added cartage charge was objectionable to consignees, particularly so as highway operators did not make a similar delivery charge. It was particularly irksome to receivers of small parcels where the minimum charge per shipment made the rate per 100 lb. very high. In the case of goods not covered by tariff rates for delivery, the cartage companies assessed rates which in certain cases were very high. This made the through charge from shipper to consignee high, as compared with highway operators' charges.

Naturally the situation resulted in a diversion of traffic from the rails to the trucks and, therefore, the railways decided to find out what could be accomplished by establishing an all-inclusive rate from door to door. In 1934, an experiment was made in a selected territory between Toronto, Niagara Falls, N. Y., and the Detroit river. While the hauls were short—maximum 250 miles—it appeared that the service was attractive to shippers, and in May, 1935, the service was extended to the greater part of the provinces of Quebec and Ontario, roughly from Lake Huron east, along the valleys of the St. Lawrence and Ottawa rivers and at various points in western Canada.

Train and station services were reorganized to meet the needs of the new development. Train schedules were arranged with the view to permitting freight to be unloaded and ready for delivery at destination in the morning, instead of merely having trains arrive at destination in the morning. The station operation was rearranged so that staff was available to unload or transfer freight on the arrival of trains at practically any hour of the day or night. In effect, l.c.l. freight is now handled at stations as has been the practice at exclusive milk, express or perishable freight stations in the past. Freight for transfer connects with the first train leaving the transfer point for destination.

Freight trains were made faster and this, with the rapid handling at freight houses, developed difficulty in

Diagram Showing Pick-Up and Delivery Operations of the C. P. R. in Ontario and Quebec

getting waybills, freight bills and other office work handled in time to avoid delay. Eventually it was found necessary to send the billing over the company's telephone between many centers and in other cases the company's telegraph was used. The freight, in many cases, was at destination hours ahead of passenger trains so these could not be used, and in any case the bills had to be ready as soon as the trains arrived. They could not be made ready in time to leave with the freight or they would not be in the proper hands early enough if they traveled with the freight. Freight is loaded into cars up to the last minute, and in some cases cars are being sealed as the train starts to move.

Fast freight schedules and fast handling at stations provide a service with which the highway operator cannot compete for medium and long distances. This desirable condition was made possible and actual economies in operation effected through increasing the average load per merchandise car by more than one ton, thus reducing the total number of cars used in the merchandise service. Strict supervision and the loyal co-operation of the employees are two factors of importance in maintaining this service at a high peak of efficiency, and in securing the appreciable saving in costs.

In pursuance of its ideal of fast, efficient service, the railway has, in effect, left the rails and taken to the highway where comparative costs of operation make this desirable. That this service is appreciated by clients has been demonstrated again and again and is well illustrated by one of these operations, namely, Oshawa to Trenton in Ontario, a distance of 70 miles by rail or 85 miles by road.

Excellent Results Achieved

Fast service, fast handling, reduced rates and the practical elimination of former packing requirements have produced extremely satisfactory results, not only to the railway but to its clients. This can be well illustrated by the results achieved in the handling of freight between Toronto and Montreal, a distance of 340 miles. In July, 1935, Toronto billing for Montreal City showed an increase in tonnage of 55 per cent, as compared with

July, 1934. The shipments increased 63 per cent and the total revenues 32 per cent. During the same period, Montreal billings for Toronto increased 41 per cent, the shipments increased 59 per cent and the total revenues 40 per cent.

The accompanying diagram will assist in understanding the service given in the territory between Montreal and Toronto. It covers numerous branch lines and through routes. With a few exceptions, overnight service is maintained between any two towns, including towns which are the termini of branch lines, such as Kingston, Brockville, Cornwall and Prescott.

Examples of Fast Service

That the fast freight service is so organized as to be on a steadily expanding basis is indicated by the speed and efficiency with which freight originating in Oshawa, Ont., and scheduled for western Canadian points is handled. A combination of nicely balanced train service, well trained staffs and strict attention to details enables the company to move this freight 85 miles by road and 336 miles by rail—over three main line subdivisions and through three freight house transfers—in less than 24 hours.

A shipment leaves Oshawa at 4 p.m. by truck, arrives at Trenton at 8 p.m. and is loaded into a car on a siding near the lead of the switching yard. This car leaves for Smiths Falls, a distance of 103 miles, at 9:20 p.m. and arrives at that point at 1:30 a.m. The car is placed at the transfer shed not later than 1:50 a.m., the freight is moved to a car for North Bay transfer and leaves Smiths Falls at 2:45 a.m., arriving at North Bay at 1:45 p.m. The freight is transferred again at North Bay into cars carded direct to the principal distributing centers in western Canada, and leaves North Bay at 3:30 p.m. The cars into which the freight is loaded at North Bay receive their original consignments at Montreal—one car each for Sudbury, Ft. William and Port Arthur, Winnipeg, Winnipeg Transfer, Regina, Saskatoon, Calgary, Edmonton and Vancouver. A telegram is sent from Montreal to North Bay each evening giving the space available in these through cars, and North Bay makes arrangements to protect if there is not space in the through cars from Montreal for the freight received in the Smiths Falls and other cars. Freight from Ottawa and other points is also worked into North Bay, giving to these smaller centers the same through service as is provided from Montreal or Toronto.

Studies Continued

In many other instances similar arrangements have been made, using methods followed by the express companies but handling in freight trains which, in many cases, haul full tonnage for the locomotive. This handling on freight trains permits giving the same dispatch as carload freight. It is quite evident that highway competition is becoming severe on bulk traffic, or what was considered carload traffic, and this use of freight trains permits rail service equal to anything the highways can provide on this class of traffic.

Operating and traffic officers are earnestly continuing their studies of fast freight handling and it is fair to assume that developments in the future will provide freight shippers throughout Canada with a service marked by a steadily increasing speed in handling and delivery. That shippers appreciate the fast service as it exists at present is well demonstrated by the foregoing illustrations, and indications encourage the belief that they will rapidly take advantage of further changes as they can be put into effect.

Tariff Sections of Motor Carrier Act Again Postponed

WASHINGTON, D. C.

THE Interstate Commerce Commission is gradually building up its organization for the administration of the motor carrier act and its Bureau of Motor Carriers is beginning the work of handling the first of the many thousands of applications for certificates and permits filed under the "grandfather" clause of the law by motor carriers that were in operation before the law was passed, but it has found it necessary to postpone again the effective date of the sections of the law relating to tariff publication.

The commission, by Division 5, on November 9 issued an order further extending the effective date of Sections 216, 217, 218 and 223 so that tariffs need not be filed before January 15, 1936, to become effective 30 days later. The sections named deal with the filing and observance of tariffs and schedules, rates, fares, and charges, as well as the issuance of receipts or bills of lading and the collection of charges. The effective date had previously been postponed from October 1 to December 1. This action, the commission said, was due primarily to its inability to make necessary preparations incident to the filing of tariffs and to give operators additional time in which to compile their tariffs and schedules. It said it would be appreciated that considerable office space would be needed to take care of the tariffs and schedules filed by motor carriers, and that the personnel of the commission had been unable to obtain the necessary office space and so had been delayed in recruiting needed personnel and in obtaining filing and other equipment. The commission moved into a new building built for its use a little over a year ago but other organizations had been allowed to occupy a considerable portion of its space and it has been necessary to move some of these to other locations.

Provisions of the act requiring the filing of reports with the commission and compliance with accounting rules and regulations to be prescribed by the commission will not become operative until the commission has notified the operators as to what is desired. John L. Rogers, director of the Bureau of Motor Carriers, has advised the American Trucking Associations, Inc., that it will be several months before the classifications of accounts and forms of reports can be issued in their final forms. These subjects are under active consideration at this time, he said, but studies must be made viewing the problems from all possible angles.

The commission has announced that the district offices for its field forces for the administration of the motor carrier act, which will be the headquarters of its district directors, will be located as follows, provided suitable arrangements can be made for necessary office space: Little Rock, Ark.; San Francisco, Calif.; Denver, Colo.; Atlanta, Ga.; Chicago, Ill.; Kansas City, Mo.; Boston, Mass.; Minneapolis, Minn.; New York, N. Y.; Charlotte, N. C.; Portland, Ore.; Philadelphia and Pittsburgh, Pa.; Nashville, Tenn.; Fort Worth, Tex., and Salt Lake City, Utah. It also announced the headquarters of 76 district supervisors.

This arrangement is subject to change if experience demonstrates that other locations would promote greater efficiency and economy of administration. District directors and district supervisors will be appointed as a result of competitive Civil Service examinations and the Civil

(*Continued on page 679*)

Railway and Truck, Co-partners*

Private transportation is a serious threat to both agencies and they should co-operate to protect themselves

By John R. Turney

THE motor carrier act, recently passed by Congress, makes a fundamental change in the business of transporting freight for hire on the highways, or rather in the status of the carrier who engages in that business. As the exercise of an ancient power of the state to regulate a public business, the act formally attests that the highway carrier now has outgrown the character of a private entrepreneur and has attained the full stature of a public utility. The new dignity thus attained entails greater responsibilities as well as wider opportunities for public service and private profit.

The past decade has witnessed an intensive struggle between the railroads and the motor carriers, not only in the field of commercial competition, but also in the halls of legislatures and of Congress. Happily, the political controversy, I trust, lies behind us, now that substantial equality of treatment, insofar as regulation is concerned, has been attained. It therefore behooves the railway and highway carriers frankly and dispassionately to consider their future relationships in the new era of uniform control which has just begun.

The most important benefit from the Act is stabilization in the industry. In the era which has just finished, every evil of cutthroat competition was rampant; and the results were as detrimental to legitimate motor carriers as they were to the railways.

The quickness with which stabilization is realized by the carriers will depend in no small degree upon themselves. Enthusiastic co-operation, rather than dignified acquiescence, is what is indicated. Nor will the task be nearly so difficult or intricate as it may now appear. The commission's Motor Carrier Bureau is made up largely of practical operators. Once applications for certificates of authority are filed and granted, the right to operate will be secure, provided, of course, that the obligations of the carrier, thereby undertaken, are discharged. These obligations are comparatively few.

A benefit of major importance to carriers, rail and highway, and the public alike, arises from the fact that now, for the first time, full opportunity is afforded for a real and complete co-ordinated service of rail and highway facilities and services. However, the act only makes these things possible, and to realize them will require voluntary and affirmative action by the carriers themselves.

The interests of the rail and highway carriers, and of the public, are not opposed to one another, but are identical. The most critical problem that faces the American people in the transportation field is whether or not we are to preserve a system of carrier transportation in this country, or are to revert to a system of private transportation. This transportation problem is common to all. It is one which must be faced and solved in the very near future, if a voluntary choice is not to be forestalled by laches.

A third or more of the freight tonnage, carload as well as less than carload, which formerly moved by carriers, is now being transported privately, directly or indirectly, by the shippers. The trend away from carrier transportation and toward private transportation is growing stronger every day and unless it is arrested the time will come shortly when serious consideration must be given to drastic curtailment in carrier facilities.

There is no inherent necessity for a transport monopoly. There are, however, definite limits upon the extent to which competition can be permitted, without adversely affecting the public interest. Competition is an evil whenever, from the standpoint of the industry as a whole, it results in transportation waste, preference, instability or unprofitability. Measured by this criterion, the common varieties or evil types of competition, in the order of their importance, are: Competition between different kinds of transport; competition between markets; price competition; and plant competition.

Evil Types of Competition

When one kind of transport competes with another, each attempts to perform service for which its instrumentalities are inferior to those of its competitors, since neither is satisfied to stay within the field of its economic or service superiority. As a result, the service of each is impaired, commerce is burdened with the support of an inefficient service, and the public is deprived of a superior service to which it is entitled. The evil is inherent in competition between different kinds of transport, such as rail and highway carriers. Only by integrating the services of all types of transportation can a reasonably efficient and serviceable system of transportation be evolved. The public will obtain the best service not by competition of different modes of transportation, but by their co-ordination.

Competition between markets, both of production and consumption, is intense and incessant. The duty of a carrier is to the nation and not to any particular community. When a carrier's operations are restricted to a region or to a particular market or group of markets, to which as a private enterprise it must look for its sustenance, it is quite natural for it to seek to promote the business of that market at the expense of those which it does not serve. The carriers which serve the latter do not stand idly by when this is attempted. A type of competition results which is pernicious in its effect on the carriers and the public alike.

In ordinary business affairs, competition in price is the chief protection which the public has against extortion. This condition, however, does not apply in the slightest to the transportation industry. Not only is there no need for price competition, but it leads to serious complications. An obligation of the carrier, as important as that to charge reasonable rates, is that to make nonpreferential charges. In practically all cases of competition in price making, the purpose is to get a definite business, sometimes of a single shipper or group of shippers, and in many such cases the result, if not the intent, is to prefer such shipper or group of shippers. When such shipper or group, oftentimes because of carrier provocation, holds forth the bait or shakes the traf-

* From an address before the Louisville, Ky., Transportation Club on November 5, 1935.

fic club in consideration of a cut price, the transaction becomes nothing short of a racket.

A second evil of competition in price making lies in the effect which it has on the carrier revenue as a whole. Rates which are not profitable to carriers in the long run are disserviceable to the shipping public, because of the impaired service which inevitably results. Rates should be reasonable, nonpreferential, and produce compensatory revenues to the carrier.

A form of carrier competition which is evil, both in its positive and negative results, arises from the competitive duplication of plant and service. The positive evil of this sort of competition is the burden which the excessive plant or service casts upon transportation. The negative evil is the strong tendency for carriers to agree to forego improvement in plant or service because of the expense which would be incurred if all should attempt to make improvements desirable for one.

Competition, however, when kept within reasonable bounds, is inherently beneficial. The fact that the service must be sold, not merely delivered, tends constantly to make competitive carriers seek better or more efficient means or instrumentalities for performing service, or to install new services to create or develop traffic, rather than to steal it from one another. So long as private profit remains the incentive for carrier service, competition, restrained within reasonable limits, also must remain if the service is to be kept efficient and economical.

In the past, each highway carrier largely has been a law unto itself, at least theoretically. As a matter of fact, however, it could not make its own prices. They were made by its cheapest-minded competitor. Under the new era, much greater co-ordination in pricing will be required. While at the outset, several competing carriers may publish entirely different schedules or rates for the same competitive service, it is difficult to see how all will continue to operate for any considerable time under such conditions. It is inevitable that the motor carriers will follow the example of the rail lines and establish joint agencies by which their pricing functions can be exercised and their tariffs published. But this will not be sufficient. Some sort of co-ordination should be made between the rail and the highway pricing agencies. Further, there appears no reason why, from the very beginning of rate regulation, contact or conference committees, representing the two classes of carriers, cannot be organized to function in precisely the same way.

Highway Rate System Should be Developed Independently

There are two reasons which demand that the price of highway carrier transportation be based solely upon its own costs and experience, rather than upon those of the rail carriers.

The first and impelling reason is the necessity to meet the menace of private transportation. Shippers now have available facilities which enable them to transport their goods practically to any part of the United States by motor truck, at a price which depends entirely on the cost to the shippers of operating their own trucks. This cost is the absolute ceiling for carrier rates, rail or highway. No shipper who is sane and free will continue long to pay more for a service than the amount for which he can provide the equivalent service for himself.

The Co-ordinator's Section of Transportation Service found, in the case of merchandise or package freight, that the cost of handling merchandise by private carrier was less than the first-class rail rate for 600 miles in the East, and from 1,000 to 1,500 miles in the West and South; and that for handling third-class freight, the private hauler's costs were less than the comparable rail rate for all distances under 300 miles in the East, and between 500 and 700 miles in the West and South. In a study based upon the entire tonnage of 22 principal carload commodities which accounted for 74 per cent of a year's revenues of all railroads in the country, the cost to the shipper of transportation in his own vehicles was less than carload rate in the case of every one of the commodities within varying distances. In the case of citrus fruits, fresh meats and automobiles, this distance was under 300 miles; in the case of miscellaneous manufactures, fresh vegetables and potatoes, under 240 miles; livestock and canned goods, 180 miles; gasoline, lumber, structural material, flour, cement, corn, road and fuel oil and sugar, 120 miles; and in the case of such heavy bulk commodities, as coal, wheat, ores, sand and gravel, 26 to 60 miles.

This comparison is with the rail carload rate and does not take into account savings in drayage to and from team tracks, loading and unloading cars, or packing and crating commodities for shipment, which costs themselves, in many cases, were found to exceed the total freight cost, and which, when freight is moved by the private truck, were largely reduced or in some cases entirely eliminated. Despite this difference in rates, upon the whole, the evidence was quite conclusive that the average carrier cost of transporting property, whether by rail or highway, whether merchandise in less than carload lots or carload freight, was much less than the average cost to the shipper of providing the same transportation. This simply means that the difference is not due to an actual cost differential in favor of private transportation, but is due to an artificial handicap imposed by the rail rate structure. To meet this condition, the motor carriers need only to follow their own costs in order to provide a rate structure which meets today's realities.

While the new highway rate structure should be peculiarly its own and should be based with respect to present day conditions, rather than those existing during the many decades of rail monopoly, yet there is no reason why this new structure should be developed competitively with the railroads. The facts developed by the Section of Transportation Service show conclusively that both from a service and an economic standpoint, there are well defined fields in which the railway and the motor truck each is respectively superior to the other. It follows, therefore, that eventually a new carrier rate structure, rail and highway, must be evolved which will take into account the utilization of each instrumentality within its own field of superiority. While this may not come immediately, there is every reason to believe that statesmanship upon both sides of the table can result in that kind of a rate structure being worked out cooperatively by the carriers themselves. Some day, and that soon, the pricing function for rail and highway carriers alike will be placed in the hands of a single authoritative carrier agency. Pricing can never become the simple, accurate and equitable process which our national welfare demands it should become until that be done. In the meantime, however, in the common problem which confronts them, the rail and highway carriers can make no greater mistake than to continue the competitive ratemaking which dominated the period which has just closed.

Superiorities in Each Type of Service

There also are certain definite superiorities with respect to service which the rail facilities and the highway facilities respectively enjoy. These respective superiorities in service should be preserved in their best possible

combination, so that the economy of the train or the long haul, in which the rail may be supreme, is attained, and at the same time, the economy of the truck for the smaller load and the quick or flexible movement is attained. Both the train and the truck are essential to modern transportation. Neither should try to disposses the other, but on the contrary both should strive to make carrier service superior to private service by combining the best that lies in each.

An essential step in co-ordination is a system of through rates, truck and rail, designed not for the purpose of benefiting one or the other of the carriers, but to make available to the shipper a market which approaches in flexibility and universality that of private transport. In many cases it will be found that the highway carrier can perform services for the rail carrier much more expeditiously, serviceably or economically, than the rail carrier can perform the same service for itself.

Another field in which there is the greatest opportunity for improvement in service as well as economy of operation lies in joint rail and truck freight stations. In the partnership between rail and highway, it will be essential from the standpoint both of service and economy that they operate from common facilities, and to this end join in providing a single station for the service of a public, as well as in the employment of a common agency or agencies for the collection and delivery of freight, carload and less than carload.

One of the most serious problems which confront rail carriers lies in their terminals, which occasion enormous waste of time, impair service, and result in tremendous waste of money. In many cases it will be found that by utilizing trucks, rail carriers can obtain a terminal service which not only is far superior to that which they can render now, but also is much cheaper.

Prerequisite to any real co-ordination of line and terminal operations is the utilization of equipment which may be transferred quickly and economically between chassis of highway vehicles and chassis of railway cars. Equipment of this type already has been designed, built and is ready for use.

A further field of co-ordination lies in the marketing of the service and in the promotion of its sales. Once mutuality of interests is recognized, it will not be a long step nor require a long period for the two types of carriers to realize that the interests of both are best promoted by making carrier transportation the easiest possible kind of transportation to procure. For that reason, in time, it ought to prove desirable for them to employ a common agency to market their service, particularly if and when rates and service shall have been co-ordinated.

How to Accomplish Co-ordination

The outstanding cases of rail and highway co-ordination today are where the rail and highway services continue to be operated wholly and independently by different organizations, the co-ordination taking place by agreement and use of common agencies and facilities.

The carrier's obligation goes further than merely offering a means of transportation. It must be prepared to employ its facilities in combination with those of other transport agencies, even in some cases to the subordination of its own private gain, if this be necessary to promote the public good. This obligation to subordinate the private to the public good extends to operators or managers of transport agencies as well as to the owners of those properties. In any cases of conflict between the public duty and the individual desire, the will or profit of the individual management should give way, however irksome it may be so to do. On the other hand, no private enterprise can function efficiently or serviceably except at a profit. Neither the owners nor the employees will contribute capital or labor essential to its functions unless both are adequately compensated and unless their investments and their employment are reasonably stable and secure.

In the new era which we are facing and under a system of equal and fair regulation, the rail and highway carriers together can attack and solve this present problem of private transportation, and provide for the public a service more efficient and at the same time more profitable than ever before possible.

Tariff Sections of Motor Carrier Act Again Postponed

(*Continued from page 676*)

Service Commission has announced that applications must be filed with it not later than December 2. The annual salary for director positions is to be $5,600 and that for supervisors $3,800. Later the commission is to issue notices of examinations for accountants and tariff examiners.

Applications for certificates and permits are now coming to the commission in increasing numbers and the commission on November 9 began the practice of making them public through its press room for the inspection of those interested. A dozen or more a day have thus been put out and during the first part of this week the number had reached over 100.

Questions relating to co-operation between the railroads and the trucking industry with a view to the handling of controversial issues by the conference method were discussed by Co-ordinator Eastman, who is also chairman of the division of the commission having to do with motor carrier regulation, with J. J. Pelley, president of the Association of American Railroads, and Ted V. Rodgers, president of the American Trucking Associations, Inc., at Washington on November 14.

This followed the announcement by the trucking association of a resolution adopted by its executive committee as "a move for harmony among truck operators, railroads, and shippers" recommending the appointment of a conference committee representing the three groups to "meet, confer and recommend rules, regulations, rates, and practices of the transportation industry for consideration of the participating bodies" . . . Mr. Rodgers was authorized to appoint the spokesman for the motor group and the railroad association and the National Industrial Traffic League were asked to appoint representatives. Mr. Pelley approved the plan tentatively and the matter was also taken up with the shippers' organization.

The resolution declared that "the present condition in transportation is due to a large extent to the absence of complete co-operation between the shipping public, rail transportation, and the trucking industry" and that it appeared to be in the public interest and in the interest of the transportation industry as a whole "to bring better order out of the present condition at the earliest possible date."

The executive committee at the same time, however, authorized officials of the trucking association to confer with Mr. Eastman and the commission officials in an effort to obtain cancellation of "thousands of truck-competitive rates" filed by rail carriers.

Communications and Books . . .

Extend Eastern Time To the Mississippi

NEW ORLEANS, LA.

TO THE EDITOR:

With the city council of Chicago voting to place Chicago permanently on Eastern Standard time effective March 31, 1936, now is the time to extend Eastern Standard time to the Mississippi river and to all cities and towns on both banks. With Cincinnati and Chicago on Eastern time, confusion will be felt at Louisville and St. Louis. Travelers will miss trains, as many will not know or remember what time to use when daylight saving time is in use. THOMAS C. POWELL.

New Books

The Interstate Commerce Commission, Part III—Volume A, by I. L. Sharfman. 684 pages 9¼ in. by 6 in. Bound in cloth. Published by the Commonwealth Fund, New York. Price $4.50.

This volume launches the third phase of Professor Sharfman's monumental work on the Interstate Commerce Commission. Of Part III's general subject—The Character of the Commission's Activities—it covers three aspects, considering in turn the extent and diversity of the commission's tasks, the valuation project and the control of organization and finance. The forthcoming Volume B, with its discussions of "Rate Regulation: The Rate Level" and "Rate Regulation: The Rate Structure" will complete Part III.

While Volume A is thus concerned in the main with comprehensive appraisals of the commission's valuation work and of its activities in connection with the regulation of railway finance, the introductory chapter nevertheless presents a statistical summary of the commission's work in its entirety. It shows, for example, how the number of cases coming before the commission has grown; how miscellaneous assignments from Congress reflect a disposition there to "turn the commission into a general service agency," but, withal, how, in the author's opinion, the commission "has shown a praiseworthy disposition to recognize and assume this composite responsibility, as far as possible, rather than to build up a system of virtually independent bureaucratic control by subordinate officials and clerical employees." And yet, despite this latter, Professor Sharfman sees, in current proposals for a new regulatory set-up, indications that "the difficulties springing from the volume and sweep of the commission's tasks have definitely emerged from the confines of academic comment and are making themselves felt as pressing practical problems."

The chapter on the valuation project covers the mechanics of this task, its nature and purposes, the pressure of legislative requirements and judicial determinations, the ascertainment of the underlying figures, the determination of single-sum values and the revision of primary valuations. Here and there in the foregoing connections the author becomes critical of the commission's methods and reasoning, although seldom does he question the essential soundness of its ultimate findings. He finds the valuation project in general to be a "significant landmark in the commission's record of performance"—this appraisal having its setting against a background which embodies an appreciation of the fact that the commission "was called upon to steer a very difficult course, through a network of mandates, restrictions, and suggestions, interspersed with spaces left clear for unhampered exercise of discretion."

The chapter on control of organization and finance is subdivided into sections, considering in turn: Extensions and abandonments; co-operation and combination; and the issuance of securities and assumption of obligations. In these connections, especially in cases involving securities issues and approval of reorganizations, the commission is found to have proceeded with a restraint which appeared to find justification in events of the 1920's. In retrospect, however, against the background of events since 1929, the author thinks "the commission would have done well in earlier years to apply stronger pressure for the reduction of indebtedness; and for the future such a course is plainly indicated." Also, he criticizes the railroads for their failure to take advantage of the pooling device to effect economies through co-operative effort, until "leadership in this direction was appropriately assumed by the government, as an emergency measure."

Like the two previous volumes of this series—Part I, subtitled The Legislative Basis of the Commission's Authority and Part II, The Scope of the Commission's Jurisdiction,—this book, aside from the authoritativeness of its content, is a literary work of merit. In addition to Volume B of Part III there remains in the projected plan of the series a Part IV which will be subtitled "The Commission's Organization and Procedure."

The Mechanics of a Locomotive on Curved Track. By S. R. M. Porter. Published by The Railway Gazette, London, England. Paper bound, 32 pages, 9 in. by 12 in. Price, 5 shillings.

This paper was first published as a serial beginning in the Railway Engineer and completed in the Railway Gazette after the consolidation of the two publications. The author was educated in England and, after working for a while with the locomotive firm of Nydquist & Holm, Trollhatten, Sweden, entered the service of the London, Midland & Scottish Railway. In 1929 he was appointed assistant to Sir Henry Fowler, head of the newly formed research department. For this paper the author received the George Stephenson award of the Institution of Mechanical Engineers.

The behavior of a locomotive or a car passing around a curve at speed and the forces produced on the wheels and the track is a complicated problem in railway mechanics. The bearing on rolling-stock design, particularly for high speeds, is, however, important. If the forces become too great, the flange of the wheel will mount the rail and derailment will occur.

The paper is probably the most complete mathematical and mechanical analysis of the problem that has ever been attempted. After consideration of the forces acting on a curve and on the truck and a consideration of the slip between the tire and the rail, there are seven appendices giving calculations and analyses in detail of the problems involved.

Proceedings of the American Wood-Preservers' Association for 1935, 390 pages, 6 in. by 9 in. Illustrated. Bound in cloth. Published by the association, 1427 Eye St., N. W., Washington, D. C. Price $6.

This, the thirty-first annual Proceedings of the association, contains 26 papers and committee reports in addition to the usual record of routine business. While some of the papers and reports deal with technical matters in connection with wood preservation and are, therefore, of more direct interest to those engaged in the industry, eight are of special interest to railway men. These are Tie Service Records, Marine Piling Service Records, the Use of Creosoted Wood in Buildings, Treated Timbers in Port Structures in New York Harbor, Decay and Marine Borer Resistance of Creosoted Piles in Tide Water, Experience of the Southern Pacific with Treated Timber in Bridge Construction, and the Experience of the Chicago, Burlington & Quincy with the Treatment of Crossties and Fire-Retardant Wood for Fire Doors. Many of the remaining reports and papers also contain useful information on the use of treated wood in various applications. An unusual feature is a complete list of patents for wood preservatives issued in Europe, America and Japan since 1914. The statistical section contains the twenty-sixth annual report, for 1934, on the quantities of wood treated and preservatives used in the United States, which, during the entire period since 1909, has been compiled by R. K. Helphenstine, Jr., of the Forest Service of the Department of Agriculture.

News Department begins on next left-hand page

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NEWS

National Motor Freight Classification Planned by Trucking Association

Decision to draft a national motor freight classification of commodities to be used in connection with tariffs filed initially under the federal motor carrier act was reached this week by American Trucking Associations, Inc., as represented by its national rates and tariffs committee. After months of study, the committee concluded that the trucking industry needed a classification of its own for immediate use. The purpose of the classification is to bring about uniformity in the yardstick by which rates will be applied, so as to avoid discrimination against shippers and confusion among carriers.

Because of the necessity of filing their initial rates with the Interstate Commerce Commission by January 15, and because no existing truck classification can be made applicable to all truck carriers on a national scale, truck operators are faced with the necessity of pooling the experience of the industry into one uniform, national classification within a relatively brief period.

Committee members stressed the fact that in drafting the new classification "particular care will be taken to preserve for the shipping public all the natural advantages of truck transportation which they have at present." In this connection, they pointed out that the motor carrier act provides that the "inherent advantages" of truck transportation must be preserved.

To facilitate the work, the trucking organization is enlisting the services of truck operators from the 48 states and the District of Columbia so as to obtain the points of view from every territory, and all conditions affecting motor transportation.

The task will be prosecuted intensively under the direction of the national committee, and will be completed in time to allow the carriers to use the classification in connection with their initial rates.

Some idea of the huge scope of the task may be gained from the fact that the existing railroad classifications consist of hundreds of pages. The national truck classification, however, will be greatly simplified, although it will cover all commodities handled by the motor carriers.

"The action of the committee was prompted by the desire to establish a degree of uniformity in the filing of tariffs by the motor carriers with the I.C.C.," explained Frank I. Hardy, of Boston, acting chairman of the committee. "The truck classification will be an initial publication. As time permits, however, it will be refined and adjusted to meet the needs of the industry and the shippers as experience dictates. Many shippers have complained bitterly of the unnecessarily involved classification of commodities in use by other transportation agencies, and the demand has been for a simplified one adopted to truck transportation. We will produce such a classification, and have it ready for use by the carriers not later than January 1." Mr. Hardy explained further that tariff bureaus had been organized by motor carriers in various sections of the country, and some of them already had proceeded to the drafting of classifications applicable to their territories. Their findings, he said, will be incorporated into the work to be undertaken by the national organization.

Illinois Central Broadcast

The Illinois Central, beginning November 17, is presenting a radio program, entitled "Headin' South," over a group of NBC stations in the Northwest, featuring a string orchestra.

Kentucky Class and Commodity Rates Reduced

The Kentucky Railroad Commission, in an opinion and order issued on November 13, Docket 344, reduced class and commodity freight rates within the state an average of 39 per cent, with some rates cut as much as 50 per cent.

Early Connecticut Railroads

The pamphlet entitled "The First Twenty Years of Railroads in Connecticut," which was prepared by Sidney Withington, electrical engineer of the New York, New Haven & Hartford, for the Committee on Historical Publications of the Tercentenary Commission of the State of Connecticut, is now available at 25 cents a copy. The Yale University Press, New Haven, Conn., is the publisher.

Wants Key West Line Restored

The Social and Economic Union of Cuba on November 16 cabled from Havana a petition to President Roosevelt asking his aid in the re-establishment of railway communications between Key West and the Florida mainland as a gesture of sympathy and co-operation toward the town that played a prominent part in the Cuban struggle for independence at the time of the Spanish-American War. The Key West extension of the Florida East Coast was destroyed by the hurricane of September 2 and rebuilding has since been deferred.

Meanwhile there have been reports from Washington that the Reconstruction Finance Corporation has been approached with a proposal that it finance the construction to Key West of a highway which would use the F.E.C. roadbed, bridge abutment, etc.

Mathew S. Sloan Sees Beginning of Better Trend for Railways

Railroads have commenced their "comeback," but their full recovery depends not only upon a return of prosperous times but upon a realization by the public that it is economically wrong to use public funds to subsidize one form of transportation at the expense of another. This is the salient point made by Mathew S. Sloan, board chairman and president of the Missouri-Kansas-Texas, in an address before the Southwestern Divisional meeting of the United States Chamber of Commerce, at Kansas City on November 9. Mr. Sloan said the remedy for the railroads' difficulties was not merely one of regulation, but one of "simple justice and good business," and appealed to business men to use their influence to have all transport enterprises dealt with equally.

He voiced unqualified optimism concerning the future development of the Southwest, and the future of the railroads. "To believe that the railway industry is decaying and will be supplanted by other forms of transportation is to confess an astounding lack of knowledge about our country and its basic needs," he said. "To believe that the unfair conditions under which the railroads struggle will continue indefinitely is to express a lack of faith in the fair-mindedness of the American public. To believe that the railroads are headed for government ownership is to admit a fear that we are going to drift from a democracy into out and out socialism.

"The trend for better business already has set in and so, I believe, has the trend toward a new day for the rail carriers. The Motor Carrier Act passed at the last session of Congress promises at least partial correction of the inequitable competition conditions under which the railroads have been struggling. Remedial legislation with respect to waterway competition has been considered with what appears to be good chances for its passage. Fourth Section relief, which would restore a large amount of present water-borne traffic to the rails and thus increase railroad employment and spending, also appears in the offing."

But even with business back to its former levels the railroads must be fairly dealt with if they are to fulfill their mission. "Business improvement alone will not solve the railroad problem," he said. "But better business and equal treatment for all forms of transportation, both as to regulation and taxation, will mean that the carriers will put hundreds of thousands of now idle railroad men back to work, and place orders for billions of dollars worth of equipment and improvements."

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Revised Rules for Separating Freight and Passenger Service Expenses

The Interstate Commerce Commission has issued a revision of its rules for the separation of operating expenses, taxes, equipment rents, and joint facility rents between freight and passenger service on Class I railways, effective on January 1, and superseding the order of December 1, 1919.

Bulletin on Freight Train Resistance Reprinted

In response to a continuing demand for Bulletin No. 43, containing the monograph by Professor E. C. Schmidt of the University of Illinois on freight train resistance, issued in May, 1910, and which has been out of print for several years, this bulletin has been reprinted by the Engineering Experiment Station of the University of Illinois, Urbana, Ill.

Northern Pacific Gives Land for State Park

The Northern Pacific has donated 262 acres of land to serve as a Montana state park near the mouth of the Lewis and Clark cavern in the Montana Rockies. The railroad had previously ceded 160 acres of land, surrounding the cavern entrance, to the federal government as the setting for the Lewis and Clark national monument. The newly designated state park area will serve as an approach to the monument and also as the site of buildings for the accommodation of visitors to the cave.

Human Factor in Transportation

The Twentieth Triennial International Transportation Conference of the Y. M. C. A. was held at the Mayflower Hotel, Washington, D. C., November 13, 14 and 15, the general theme of the conference being "The Human Factor in Transportation." R. C. Morse, vice-president, Eastern Region, Pennsylvania Railroad, was elected chairman of the conference. About three hundred representatives were present from the United States and Canada. The meeting proved to be unusually productive in the way of practical accomplishment. A more complete account of the proceedings will appear in a later issue of the *Railway Age*.

Reduced Fares for the Holidays

The Pennsylvania announces that round-trip coach tickets for Thanksgiving, beginning November 27 with a return limit until midnight, Monday, December 2, will be sold throughout the company's lines at two cents per mile traveled; and for the same days, passengers riding in sleeping and parlor cars may have the benefit of round-trip tickets at a saving of one-third; also round-trip Pullman accommodations will be 25 per cent lower than usual. The going portion of sleeping car tickets will be good on trains leaving as late as noon on Sunday, December 1, and the return portions on trains leaving not later than 4 a.m., December 3.

The low rate tickets for New Year's day will be good going between December 20 and January 1, and final limit of the return tickets will be January 10. Attention is called to the fact that this is the first time that reduced round-trip fares have been established for passengers using coach accommodations only.

The New York Central announces similar reductions, the round-trip coach rate, good between all stations east of Buffalo, being sold at one fare plus one-ninth, for the round trip, and the special round-trip tickets good in Pullman cars will be favored with a reduction of one-third in the railroad fare. These latter will be good between all stations on the Central as far west as Chicago and St. Louis. The reduction in sleeping car charges will be 25 per cent.

I. C. C. Dismisses Kansas City Terminal Complaint

The Interstate Commerce Commission has dismissed a complaint filed by the Kansas City Southern and cross-complaints filed by the Alton, the Chicago Great Western and the Wabash seeking a finding by the commission that payment of interest and taxes of the Kansas City Terminal by carriers using its terminal facilities upon the basis of their proportion (one-twelfth) of their ownership of the Terminal company, constitutes undue prejudice to and an undue burden upon their interstate commerce, and seeking the removal thereof by order requiring that payment be made actually or approximately upon the basis of percentage of use. The commission found that the evidentiary facts pleaded do not disclose a cause of action which it has jurisdiction to entertain and granted the motions of defendants for an order dismissing the complaints.

Club Meetings

The Toronto (Ont.) Railway Club will hold its next meeting on Monday evening, November 25, at the Royal York Hotel, Toronto. The speaker will be George A. Maclennan (Canadian National), and his subject "How Can the Railways Increase Their Revenue?"

The Northwest Car Men's Association (St. Paul) will hold its next meeting on Monday evening, December 2, at the Midway Club Rooms, 1957 University Avenue, St. Paul. H. Sjogren, assistant mechanical engineer, C. M. St. P. & P., will speak on railroad development and the modern train.

The Pacific Railway Club will hold its next meeting on Thursday evening, December 12, at the Palace Hotel, San Francisco. This will be the annual associate members' holiday entertainment.

New Transportation Maps Chart Facilities in Iowa

A set of large-scale maps showing all details of the existing transportation system in Iowa has been prepared by the Bureau of Public Roads of the U. S. Department of Agriculture in co-operation with the U. S. Geological Survey. The maps are on a scale of 4 miles to the inch and are believed to be the best of the kind yet produced. The set consists of 8 sheets approximately 26 by 36 inches, so arranged as to permit binding on the left margin, and shows in color the location and character of practically all transportation arteries such as the federal-aid and State highway systems, important secondary highway connections, air lanes and landing fields, railroads, pipe lines, navigable channels and canals. Iowa is the first state for which transportation maps have been prepared. Sets of the maps are obtainable by purchase from the Superintendent of Documents, Washington, D. C., at $1.75 per set.

Re-Examination of Consolidation Question Recommended

Re-examination of the subject of railroad consolidation in the light of improving business conditions is recommended by the special committee of the Chamber of Commerce of the United States on this subject in a preliminary report made to the board of directors. Naturally, says the committee, nothing could be done about consolidation during the acute phases of the depression. Benefits that would come from consolidation, the committee declares, lie not only in elimination of duplication and waste, but especially in the opportunity that would be given for improvement and expansion of railroad service generally. Too, it holds, consolidation would give an approach to the problem of finding the most economic use of all forms of transportation. The committee emphasizes the importance of maintaining the principle of voluntary consolidation and the necessity of doing away with existing legal requirements which hamper the operation of the railroads in many directions.

Oppose Beaver-Mahoning Canal

The Upper Ohio Valley Association, Pittsburgh, Pa., has recently issued a pamphlet setting forth its opposition to the construction of the proposed Ohio River-to-Lake Erie canal over the Beaver-Mahoning route, which is now being surveyed in accordance with a provision of the Rivers and Harbors Bill which passed the last session of Congress.

The pamphlet lists eleven reasons in opposition to the canal, including, among others, the contention that no one outside of the Youngstown district would use it, that its cost would be an unjustifiable burden upon the public and that existing transportation facilities in the area involved are already more than adequate for all of the needs of the district even in peak times.

Supporting its position the Association quotes from a report of Major W. D. Styer, U. S. Army district engineer at Pittsburgh, made in 1933 in connection with the then proposed stub-end canal from the Ohio river to the Youngstown district. Also, it is planned in the near future to "present additional facts showing the utter lack of justification for the proposed canal."

Safety Lecture for December

The admonitions of the Safety Section, A.A.R., issued for the benefit of railroad safety committees, in connection with their duties toward employees, for the month of December, have to do with a class of accidents sometimes given insufficient attention; those in which a person killed or injured is classed as "struck or run over by engines or cars"; but where the indi-

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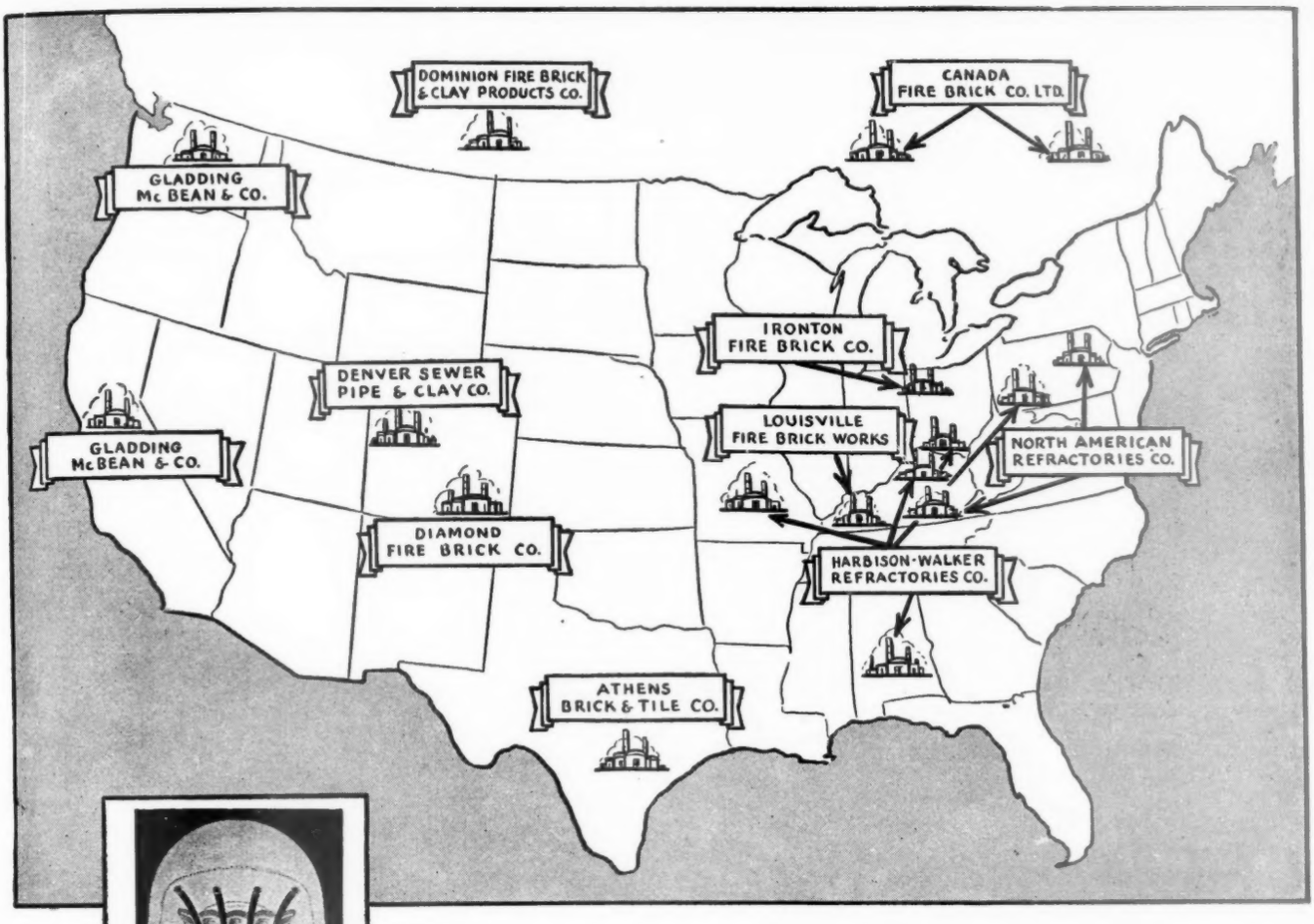

A Service of Supply
That Means Economy
To the Railroads

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This service of supply is maintained by the American Arch Company to facilitate proper maintenance of Security Arches which assures maximum fuel economy.

AMERICAN ARCH COMPANY
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NEW YORK **CHICAGO**

vidual was not on the track; he was near the track. Citing a number of instances, the committee emphasizes the fact that the end of a front buffer beam or the edge of a cylinder head may be as fatal as though one stood in the middle of the track or was where he would be ground to pieces by the wheels. One brakeman was sidewiped by a car which he had just cut off. Result—instant death. Another man was so close to a passing train that the tenth car struck him with sufficient force to cause death instantly.

Employees and all are urged to remember that *fouling* a live track is just as likely to be fatal as getting *on* a live track. A poster has been issued giving these points in pictorial form.

Business Paper Editors Publish Guide for Direct Loan Applicants

The Committee on Direct Loans of the National Conference of Business Paper Editors and the Associated Business Papers, Inc., has recently completed a second study on direct government loans to industry entitled "A Guide to Applicants for Direct Loans." This guide supplements the report, "What About Direct Loans to Industry?" which was released previously.

The guide differentiates briefly and concisely between the three sources of government aid—Reconstruction Finance Corporation, Federal Reserve banks and Federal Housing Administration. Outlining the legal requirements which must be met in securing such aid, the study indicates what uses borrowed funds may be put to, what costs as to interest rates borrowers must pay, how to route applications to secure the speediest action, what equipment purchases are eligible for loans, and many other questions of vital interest to prospective borrowers. In addition, it includes case studies of applications which were rejected by Federal Reserve banks, pointing out weak spots in financial and managerial set-ups. Copies are available at 25 cents each at A.B.P. headquarters, 330 West Forty-second street, New York.

Engineers Honor John F. Stevens

John F. Stevens, noted railroad builder, was awarded a certificate of honorary membership in the Western Society of Engineers on November 18, in recognition of his outstanding achievements in engineering. The award was made at a meeting arranged by the railway engineering division of the Western Society, where the 82-year-old civil engineer gave an informal discussion of his six years' experiences with the Russian railways, during the World War, while he was chairman of the commission of experts organized by the Russian government and later president of the Inter-allied Technical Board in charge of the Chinese Eastern and Siberian railways. Mr. Stevens is a director of the Baltimore & Ohio. Although he has won many honors for his engineering, Mr. Stevens is probably best known for his work as chief engineer of the Panama Canal and for his discovery of the Marias Pass in 1889 while locating the Puget Sound extension of the Great Northern. This pass over the Rocky Mountains near Glacier Park is now marked by a bronze statue of Mr. Stevens, which was erected by the Great Northern in 1925. Mr. Stevens' address was prefaced by remarks from Ralph Budd, president of the Chicago, Burlington & Quincy.

500 Railroad "Fans" on New York Central Trip

More than 500 "railroad fans," including railway and supply trade officers on a "busman's holiday," and men prominent in other walks of life, made the New York Central's "Railroad Wonder Trip" from New York to that road's West Albany (N. Y.) shops and Selkirk yards on November 17. The train, consisting of 14 cars, including two diners and an observation car, left Grand Central Terminal, New York, at 9 a.m., making stops at Yonkers, N. Y., Harmon and Poughkeepsie.

Everything was arranged by the railroad to give the "fans" a day to their liking. The train traveled over the Castleton cutoff, proceeding at slow speed through Selkirk yard and stopping near the westbound hump to provide a view of the classification operations. It then proceeded to West Albany shops, where it was switched to a shop track and the party was met by shop supervisors and escorted through the shops; also, guides were assigned to groups from each car.

For "collateral reading" on the trip the N.Y.C. provided for each "fan" a folder describing the points of interest en route and including maps of the lines and yards over which the train traveled.

Another recent inspection trip of "railroad fans" from the Baltimore-Washington area was held on November 10 over the Maryland & Pennsylvania from Baltimore, Md., to York, Pa. It was sponsored by a group of Washington members of the Railway & Locomotive Historical Society in co-operation with the Baltimore Society of Model Engineers; 52 persons made this trip.

Constitutionality of Maritime Rates Questioned

Counsel for the Province of Ontario opposing an application before the Board of Railway Commissioners for Canada at Moncton, N. B., last week created a sensation by declaring that the Maritime Freight Rates Act was unconstitutional. The charge was made by Joseph Sedgwick, representing the Ontario Department of Agriculture, at the hearing of the Maritime Transportation Commission's application for a reduction in potato rates.

"I am a little afraid to answer my friend now," responded C. J. Burchell, Halifax, counsel for the commission. "Afraid that if I said what I would like to say I would say too much. So I had better think over what I am going to say. I just say as quietly as I can that Ontario is still part of Canada. It is not a foreign country. Heretofore we have had entire sympathy from the great province of Ontario as well as hearty sympathy from Quebec in our problems down here."

Mr. Burchell had outlined a claim for extending to the Maritime Provinces a reduction of three cents a bushel in the rates on potatoes to and from points in Ontario and Quebec. The case was entered primarily as a test of the validity of section eight of the Maritime Freight Rates Act, which gives the Maritimes a statutory advantage of a 20 per cent reduction in freight rates. The section provides that this advantage is to be maintained.

If the effect of section eight was to establish a fixed differential between the Maritime Provinces and Ontario, and place Ontario at a "permanent disadvantage in its own market," Mr. Sedgwick contended, "then I propose to submit to this tribunal, or to whatever other tribunal this case may go, that the whole of this Act is probably a violation of the terms of the British North America Act."

Additional Grade Crossing Programs Approved

The President has approved a program submitted by the Department of Public Works of California involving $7,486,362 for the elimination of hazards at 35 grade crossings in the state, which exhausts the apportionment made by the Secretary of Agriculture to California for that purpose out of the $200,000,000 fund allocated for grade crossings. State funds amounting to $143,566 also are to be used.

The President has also approved a program submitted by the State Highway Commission of Kentucky for 28 grade crossing projects at a cost of $2,968,625. As the total apportionment to Kentucky for this purpose is $3,672,387, there remains a balance of $703,762 to be covered by later programs.

The President has also approved a program submitted by the State Highway Department of Colorado involving $1,238,400 for nine grade crossing projects. As the total apportionment to the state was $2,631,567, this leaves a balance of $1,393,167 to be covered in later programs.

Up to November 16 the Bureau of Public Roads had approved grade crossing plans to the amount of $26,561,000 and contracts had been awarded to the amount of $9,199,524, including contracts to the amount of $1,691,540 in 11 states during the week.

C. J. Nelson Addresses Western Railway Club

At the November 18 meeting of the Western Railway Club, one of the best attended and potentially most valuable meetings of the club held so far this year, C. J. Nelson, superintendent of interchange, Chicago Car Interchange Bureau, presented an unusually timely discussion of the subject "Economical Operation of Freight Equipment." Important subdivisions of the address included defect carding; shifted loads; improper loading; rejection of empty cars on account of being unfit; disposition of defective private cars. Mr. Nelson called attention to the marked improvement in recent years in such vital phases of car handling as reduced number of cars transferred; more expeditious handling of bad order cars loaded with perishable freight; reduction in shopping of all loaded cars, including perishable freight; reduction in hopper and gondola cars interchanged with open doors. While

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"THERE IS NOTHING MORE ECONOMICAL TO GET OVER THE LINE WITH THAN THE LARGE TENDER."

● ● ● **John Purcell, Ass't to Vice-Pres.,**

The Atchison, Topeka & Santa Fe Ry. System.
(From his discussion at The Western Railway Club meeting April 15, 1935.)

But when considering larger locomotive tenders or the purchase of new tenders — give a thought to what the Elesco exhaust steam injector will do.

The Elesco exhaust steam injector will absolutely lengthen the run between water and fuel stops. It provides fuel and water savings of 8 to 10 per cent, which, in effect, increases the tender capacity correspondingly.

The Elesco exhaust steam injector is described in an interesting little booklet . . . write for a copy today.

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Exhaust Steam Injectors
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A-1015

Mr. Nelson stressed these improvements in car handling, his paper was an indictment of a considerable number of present freight car handling methods and practices, some of which are unavoidable, under present conditions, and others are due to the mistaken idea that railroads can sometimes profit individually at the expense of railroads as a whole. Mr. Nelson closed his remarks with an earnest appeal for unselfish and fair co-operation, no matter how keen the competition, between all agencies engaged in railway transportation.

Diesel Catches Fire on Test Run

On November 20 the forward unit of 3,600 hp. Diesel locomotive pulling the Santa Fe "Superchief" on a test run westbound from Chicago to Los Angeles caught fire near Gallup, N. M. The cause of fire is unknown at this writing and cannot be determined until an investigation is made. The train was brought to an easy stop when the fire broke out and no one was seriously injured. The train was backed in to Gallup, where a steam engine was supplied, which pulled it to Los Angeles.

The run was being made preparatory to establishing a regular reduced schedule between Chicago and Los Angeles. President Bledsoe, Vice-Presidents Etter and Houghton, and other officers of the road and a number of guests were aboard.

The speed from Chicago to Kansas City, 451 miles, had averaged 65 miles an hour; from Kansas City to La Junta, 540 miles, the average was 65 miles an hour; from La Junta to Gallup, 509 miles in mountainous territory, the average had been 50 miles an hour. The run had promised to set a speed record between Chicago and Los Angeles, until the accident occurred.

The speed was limited to a maximum of 98 miles an hour, which repeatedly had been approached for long distances. President Bledsoe said that the accident to the Diesel would not stop the railroad's determination to inaugurate at an early date Diesel engine fast service between Los Angeles and Chicago.

Firemen's Brotherhood Demands Two-Man Crew for Diesels

The grievance committee of the Brotherhood of Locomotive Firemen and Enginemen on the Chicago, Burlington & Quincy voted on November 18 to poll its 1,500 members on a strike vote in an effort to compel the employment of a second man in the cabs of the Diesel-operated trains. For several months the issue of the second man in the cab of these locomotives has been considered in conferences by the Burlington management and union representatives. The brotherhood's representatives have maintained that it is highly dangerous to operate these trains without having a second man in the cab, while the management contends that the "dead man's throttle" provides ample protection for contingencies arising from sudden death or disability of the engineman.

In a petition filed with the Illinois Commerce Commission, the union asked that the Atchison, Topeka & Santa Fe be ordered to assign two men instead of one on a Diesel locomotive operating in the Chicago switching yard. The Electro-Motive Corporation, subsidiary of the General Motors Corporation, has asked to intervene in the case, charging that if any compulsory order is made by the commission, such as is asked by the complainant, the sale of Diesel locomotives for switching purposes will be seriously retarded and injured and the business endangered to the detriment of the public and the petitioner. The petition says that the Electro-Motive Corporation has already spent $1,500,000 on its McCook (Ill.) plant for the manufacture of switching locomotives and plans to spend a total of $10,500,000. The decision on the intervening petition was taken under advisement by the commission until December 10.

Celebrates Sixtieth Anniversary

In commemoration of its sixtieth anniversary, the Railroad Branch of the Young Men's Christian Association of the city of New York, held a banquet at the Hotel Roosevelt, New York, Wednesday evening, November 20, Harold S. Vanderbilt presiding. About 900 guests were present. The original building which housed the Railroad Y.M.C.A. was torn down to make way for the Hotel Roosevelt. The second building was erected on the site of the new Waldorf-Astoria and was replaced by the third and present building on 47th street. The dinner, on the exact anniversary of the founding of the association, was one of a series of commemorative events, including Friendship Club Night, October 18; Gymnasium Carnival, October 24; Hallowe'en Ball, October 31; Aquatics Exhibition, November 15; and Bowling Night, November 27.

Greetings were extended on behalf of the New York City Y.M.C.A. by its president, Richard W. Lawrence, and on behalf of the National Transportation Committee of the Y.M.C.A., by its senior secretary, George K. Roper. E. G. Buckland, chairman of the board of directors of the New Haven, told of his first visit as a lad to New York sixty years ago, at about the time of the organization of the Railroad Y.M.C.A. He told also of the building of the Atchison, Topeka & Santa Fe near his home in Kansas. In recalling some of the songs sung by railroad workers of that era, he made the hit of the evening when in reciting one of them he burst out into song, and without accompaniment sang the remaining verses. Mr. Buckland closed his address by stressing the importance of the religious factor in the activities of the organization.

The closing address was made by Rt. Rev. James E. Freeman, Episcopal Bishop of Washington, D. C. The Bishop began his career in the auditing department of the New York Central and told many interesting incidents that occurred in the early life of the Railroad Y.M.C.A. He emphasized the indispensability of the railroads and deprecated the persecutions to which they have been subjected by regulating agencies. He urged that they be given a more just and equitable opportunity for carrying on and was fearful of the consequences if they should be further embarrassed. In commenting on trends and tendencies in modern life, he characterized economic conditions through which we have been passing as the greatest crisis in the history of the country. He believes, however, that this crisis is not so much economic as moral, and stressed the need of moral and spiritual awakening.

John G. Walber, vice-president in charge of personnel, New York Central Railroad, was general chairman of the Sixtieth Anniversary committees. The Anniversary Dinner Committee was headed by vice-President Jacob Aronson.

Sixty Companies Already Signed Up for N.R.A.A. Exhibit

With nearly four months to go before the opening of the National Railway Appliances Association's exhibit of materials and equipment employed in the construction and maintenance of railway track, structures and signals at the Coliseum, Chicago, on March 9-12, 1936, inclusive, concurrently with the annual conventions of the American Railway Engineering Association and the Signal Section, A.A.R., a total of 60 railway supply companies have been awarded space in the exhibit hall. These companies have contracted for a total of 131 spaces, or 19,173 sq. ft. of exhibit space. In view of this early response of the members, officers of the association feel that the success of the exhibit is already assured.

The supply companies that have already been awarded space for exhibits to date are as follows:

Adams & Westlake Company
Air Reduction Sales Company
American Car & Foundry Company
Armco Culvert Manufacturers Assn.
Austin-Western Road Machinery Company
Barco Manufacturing Company
The Barrett Company
Bethlehem Steel Company
Binks Manufacturing Company
The Buda Company
Chicago Pneumatic Tool Company
Cleveland Frog & Crossing Company
Conley Frog & Switch Company
Crerar, Adams & Co.
Cullen-Friestedt Company
Dearborn Chemical Company
DeSanno & Son, A. P.
Duff-Norton Manufacturing Company
Eaton Manufacturing Company
Evans Products Company
Fairbanks, Morse & Co.
Fairmont Railway Motors, Inc.
Gould Storage Battery Company
Hayes Track Appliance Company
Industrial Brownhoist Corporation
Ingersoll-Rand Company
Kerite Insulated Wire & Cable Company
Johns-Manville
O. F. Jordan Company
Kalamazoo Railway Supply Company
The Lehon Company
Locomotive Finished Material Company
Magnetic Signal Company
Maintenance Equipment Company
Mall Tool Company
Metal & Thermit Corporation
Morden Frog & Crossing Works
National Carbide Sales Company
National Carbon Company
National Lock Washer Company
The Nordberg Manufacturing Company
The Okonite Company
Oxweld Railroad Service Company
Pocket List of Railroad Officials
Pomona Pump Company
Pyle-National Company
Racor Pacific Frog & Switch Company
The Rail Joint Company
Railroad Accessories Corporation
Railway Purchases & Stores
Railway Track-Work Company
Ramapo Ajax Corporation
Republic Steel Corporation
Sellers Manufacturing Company
Simmons-Boardman Publishing Company
Syntron Company
Templeton Kenly & Co.
U. S. Wind Engine & Pump Company
Western Railroad Supply Company
Youngstown Sheet & Tube Company

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Construction

NEW YORK CENTRAL.—An amendment to the elimination order providing for the elimination of the Ontario street crossing of this road in the town of Tonawanda, N. Y., has been adopted by the New York Public Service Commission. The existing crossing is to be eliminated by placing the grade of Ontario street below the grade of the railroad in such manner that the undercrossing and the eastern approach are to be shifted southwardly about 88 feet and the western approaches and other features are also modified accordingly. The Buffalo Grade Crossing Commission estimated the cost would be $251,306 and the railroad estimate is $237,600.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—The Board of Public Service of St. Louis, Mo., will receive bids until noon on December 6 on the construction of the foundation, concrete piers, abutments and approach fills for the South Valley Junction approach to the railroad deck of the St. Louis Municipal bridge across the Mississippi river between St. Louis, Mo., and East St. Louis, Ill. The proposed work is located in East St. Louis.

Equipment and Supplies

LOCOMOTIVES

THE LEHIGH & NEW ENGLAND, reported in the *Railway Age* of October 26 as contemplating buying one 0-6-0 type switching locomotive, is now inquiring for this equipment.

FREIGHT CARS

THE DENVER & SALT LAKE is inquiring for 25 box cars of 50 tons' capacity.

THE PAULISTA RAILWAY OF BRAZIL is inquiring for 100 box cars and 100 gondola cars of about 33 tons' capacity. Jayme Pinheiro de Ulhoa Cintra is general superintendent. The company's headquarters are at Rua Libero Badaro, 54, Sa Paulo, Brazil.

IRON & STEEL

THE ROYAL STATE RAILWAYS OF SIAM will receive bids until 14 o'clock, January 31, 1936, at the office of the stores' superintendent, Bangkok, Siam, for the supply of 6,374 metric tons of steel rails (24.8 kg. per metre) and 577.9 metric tons of accessories. Blank tender forms may be purchased from Messrs. Sandberg, 25 Broadway, New York.

THE CHICAGO, BURLINGTON & QUINCY has ordered 20,000 tons of 112-lb. rails and 13,600 tons of track fastenings, as well as 5,500 tons of steel for bridge work and for the construction of 500 box cars and 750 open-top cars in its own shops. Orders for this steel were placed with the Carnegie-Illinois Steel Corporation, the Inland Steel Company, the Colorado Fuel & Iron Company, the Sheffield Steel Company, the Youngstown Sheet & Tube Company, the Republic Steel Corporation, the Bethlehem Steel Corporation, the Granite City Steel Company, the Pittsburgh Crucible Steel Company and the American Bridge Company.

MISCELLANEOUS

THE PENNSYLVANIA has placed an order with the Timken Roller Bearing Company, Canton, Ohio, for bearings and boxes for two additional trailer trucks and one additional engine truck for one of its Class K-4-S passenger locomotives. This makes a total of 10 K-4-S locomotives equipped with Timken bearings on engine and trailer trucks during October and November.

Supply Trade

Col. Sanders on Active Duty

Lt. Colonel Walter C. Sanders, U. S. Army Reserve, general manager of the railroad division, Timken Roller Bearing Company, Canton, Ohio, is now in Washington, D. C., for a 14-day tour of active duty in the War Department. Col. Sanders is assigned to the office of the assistant secretary of war. In 1931 he prepared a general transportation plan for a national emergency, covering railways, highways, airways, waterways and pipeways, and was commended by the assistant secretary of war for this work. During the World War Col. Sanders served in France as an artillery officer and is a graduate of the French Tractor Artillery School.

Frank J. Foley, vice-president in charge of sales of the **American Locomotive Company,** New York, has been elected a director of the company.

J. W. Porter has been elected president of the **Alabama By-Products Corporation,** Birmingham, Ala., to succeed **Horace Hammond,** who died on November 7.

The executive offices of the **Link-Belt Company** have been moved from 910 South Michigan avenue to the Bell building, 307 North Michigan avenue, Chicago.

The Markham Supply Company, Chicago, has been appointed railway sales agents for the Chicago, Omaha and Twin Cities territory for the **Henggi Rail Anchor Company.**

R. H. Gardner, division manager of the Washington, D. C., office of **A. M. Byers Company,** has been transferred to Pittsburgh, Pa., as manager of steel pipe sales; and **E. L. MacWhorter,** manager of the Philadelphia division, has been transferred to Washington, where he will head the combined activities of both divisions now known as the Washington division. District representatives will be maintained, as formerly, in Baltimore, Md., and Philadelphia, Pa.

Thomas W. Delanty, who has been covering the eastern territory since 1930 for **Joseph T. Ryerson & Son, Inc.,** Chicago, has been appointed manager of eastern railroad sales with headquarters at Jersey City, N. J. Mr. Delanty has been with the Ryerson company since 1918. He handled the export business in China and Japan for the Machinery division until 1925, since which time he has been in its railroad sales division. During the war period Mr. Delanty served in the Naval Ordnance as chief inspector of munitions, guns, and sight mechanisms.

Robert J. Working, district sales manager of the **Republic Steel Corporation,** in the Cincinnati, Ohio, territory, has been appointed district sales manager in the Birmingham, Ala., territory, succeeding **Kenneth D. Mann,** who has resigned to become executive vice-president of the Truscon Steel Company. Formerly in the sales department of United Alloy Steel Company at Canton, Ohio, Mr. Working was placed in charge of the Cincinnati, Ohio, district office of Central Alloy Steel Corporation in 1927. Following the Republic merger in 1930 he was appointed assistant district sales manager in the Cincinnati territory, and advanced to district sales manager in 1934. Paul R. Johnston of the Cincinnati office has been appointed district sales manager in the Cincinnati territory, succeeding Mr. Working. Mr. Johnston is a native of Youngstown, Ohio, where he entered the employ of Republic Iron & Steel Company in 1922. He served in the sales department at Youngstown and later at Cleveland, then in the Detroit, Mich., and Buffalo, N. Y., offices. He was transferred to the Cincinnati office in 1929. **Charles W. East,** of the Birmingham, Ala., office, has been appointed assistant manager of sales in Republic's Pipe division, succeeding **George E. Clifford,** recently appointed district sales manager in the Los Angeles, Calif., territory.

OBITUARY

W. L. Lafean, president of the Naugle Pole & Tie Company, Chicago, died in Escanaba, Mich., on November 15, after an illness of several months.

M. C. Fitzgerald, traffic manager of the General Electric Company for the 13 years prior to his retirement in 1933, died at his home in Schenectady, N. Y., on November 11. He was born on April 19, 1866, at Hudson, N. Y. and was educated there. He went with the American Express Company in 1884, then entered General Electric's employ as supervisor of shipping in 1898, and remained with the latter company during the rest of his business career, having served as traffic manager of the company from March, 1920, until his retirement. During the World War he made several trips overseas to supervise the handling of stores for the United States Army.

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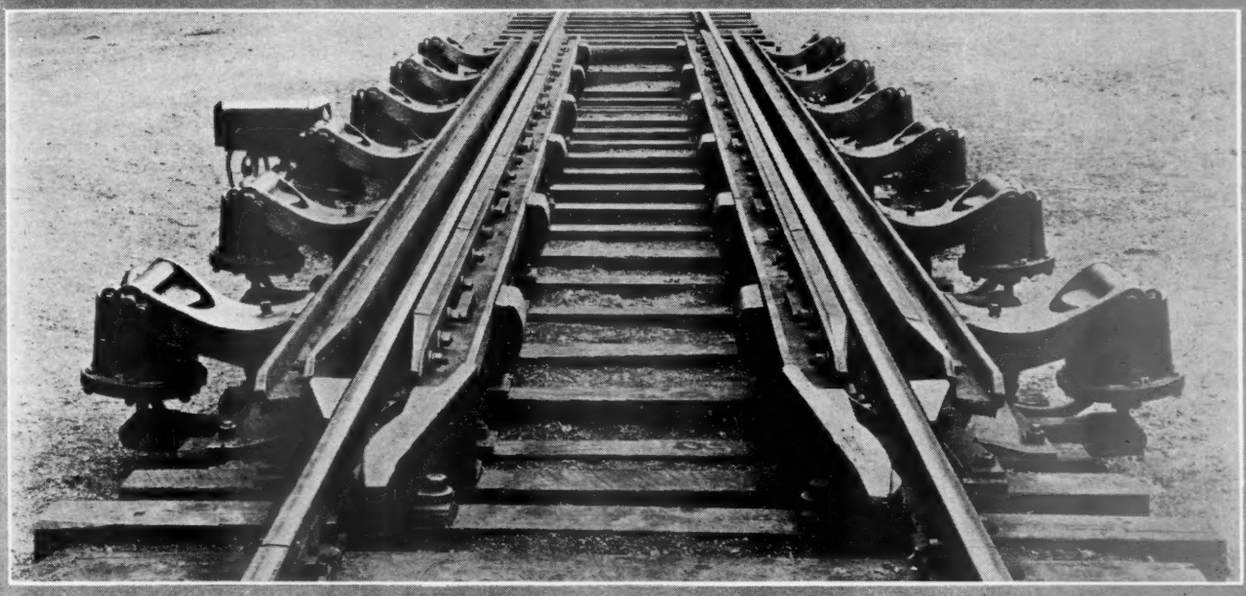
SAVED THIRTY MILLION DOLLARS



The Signal Section of the Association of American Railroads, in reporting on the economic advantages of car retarders, states:

> "If the other retarder systems in service in this country have produced savings at about the same rate that these (17) representative railroad installations have shown, the gross saving of the 32 car retarder systems, after deducting maintenance, operating and interest charges, would be nearly $30,000,000. * * * This report shows that car retarder systems are productive of exceptionally high rates of return on the investment."

And these savings were effected during years of abnormally low traffic conditions!

An opportunity for even more efficient use of car retarders is available with the improved "Union" Electro-Pneumatic Car Retarder (Model 31). It retains the advantageous features of previous designs with the addition of increased flexibility of installation, minimum maintenance, maximum accessibility and fewer parts. » » » » » » » » » »

Upon request, our nearest district office will furnish complete details.

1926

1881 **Union Switch & Signal Co.** 1935

SWISSVALE, PA.

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

Financial

BALTIMORE & OHIO. — *Stockholders' Meeting.*—The 108th annual meeting of the stockholders of this company was held in the general offices at Baltimore on November 18. Albert A. Sprague, of Chicago, was elected to fill a vacancy on the board of directors, and the other members of the board were re-elected.

CHICAGO & EASTERN ILLINOIS.—*Trackage Rights.*—The Interstate Commerce Commission has authorized this company to use jointly with the Louisville & Nashville 1.5 miles of station tracks and 0.3 mile of main line of the latter company in Evansville, Ind., in connection with joint use of the passenger station of the latter company at this point.

CHICAGO GREAT WESTERN.—*Trustees.*—The Interstate Commerce Commission, Division 4, has issued an order ratifying the court appointment of Patrick H. Joyce and Luther M. Walter as trustees, but on a condition as to Mr. Joyce similar to that it made in the Western Pacific case that he shall receive no salary or compensation from the debtor's estate for services rendered for the debtor or in connection with the reorganization proceedings, except such compensation as may be hereafter allowed by the judge for his services as trustee, within such maximum limits as the commission may approve as reasonable. This policy gives the commission control of the compensation to be paid to railroad officers who become trustees.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Reorganization.*—An independent bondholders' protective committee has filed with the Interstate Commerce Commission a petition for a hearing on the applications of H. A. Scandrett, Walter J. Cummings, and George I. Haight for commission ratification of their appointment by the court as trustees.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC. — *Abandonment.* — The Interstate Commerce Commission has authorized the Davenport, Rock Island & North Western to abandon, and the Milwaukee and the Chicago, Burlington & Quincy to abandon operation of, two segments of line of the D. R. I. & N. W.—one of 0.7 mile at East Moline, Ill., and another of 5 miles between Carbon Cliff station and the north bank of the Rock river.

DENVER & RIO GRANDE WESTERN.—*Trustees.*—Wilson McCarthy, president of the Denver & Salt Lake, and Henry Swan, vice-president of the United States National Bank of Denver, were appointed trustees of the Denver & Rio Grande Western by Federal District Judge Sims at Denver, Colo., on November 18. In the *Railway Age* last week it was erroneously reported that T. M. Schumacher and Sidney M. Ehrman had been appointed trustees of this company.

GREAT NORTHERN.—*Bond Issue.*—At a special meeting on December 20, stockholders will be asked to approve an issue of $100,000,000 of new convertible bonds. The authorization is sought as a preliminary to meeting a maturity on July 1, 1936, of $101,266,000 of 7 per cent bonds.

MAINE CENTRAL.—*Bonds.*—More than 57 per cent of the holders of $20,000,000 of this company's bonds which mature on December 1, have assented to a proposed plan of exchange and have deposited their bonds for stamping.

MISSOURI PACIFIC.—*Contracts Disapproved.*—Contracts by which the Missouri Pacific agreed in 1930 to buy terminal properties in Kansas City, Mo., and St. Joseph from the Van Sweringen interests for approximately $20,000,000 were disapproved by Judge Charles B. Faris of the United States circuit court of appeals at St. Louis, Mo., on November 15. Judge Faris ruled the contracts should be disaffirmed by the trustees in bankruptcy operating the railroad, and advised the trustees to take legal steps to recover $3,200,000 already paid under the contracts. The terminal purchases were made from Terminal Shares, Inc., a Van Sweringen subsidiary. Judge Faris held that the contracts were "improvident, unfair, unlawful and overreaching." He said they constituted, in part at least, acts outside the legal powers of a Missouri corporation and in contravention of the Clayton Act which limits the dealings of one railroad corporation with another to $50,000 in any year, where there is an interlocking of officers or directors.

Marion C. Early, special master for the court, who conducted hearings on the transaction in 1933 and 1934, recommended, on February 14, a reduction of $6,000,000 in the purchase price, with the belief the contracts were executed in good faith without profit to the Van Sweringen interests and that the railroad representatives believed the properties were worth the agreed price. However, he recommended disaffirmation of the contracts unless the price were lowered because he said the obligation had become unduly burdensome to the Missouri Pacific under developing conditions which could not have been foreseen.

The Reconstruction Finance Corporation, which loaned about $23,000,000 to the Missouri Pacific, attacked the deal on the ground the price was excessive, government accountants placing the "real value" of the properties at $6,152,000 but making no allowance for traffic value.

NEW YORK CENTRAL. — *Notes.* — This company has applied to the Interstate Commerce Commission for authority to issue and re-issue from time to time $75,000,000 of promissory notes at not to exceed 6 per cent interest, including $65,776,726 of notes now outstanding, and to pledge as collateral $175,000,000 of refunding and improvement mortgage 5 per cent bonds.

NEW YORK CENTRAL.—*Payment on R. F. C. Loans.*—Chairman Jones of the Reconstruction Finance Corporation on November 20 made public correspondence with Harold S. Vanderbilt showing that the executive committee earlier in the day had approved and accepted the terms of a settlement discussed with Mr. Jones on November 19 by which the company will pay on December 1 the $15,600,000 of notes due the corporation on that date, from cash available, and the R. F. C. agrees to extend the remaining notes totalling $11,899,000 maturing in 1936 and 1937 until July 1, 1941, subject to the approval of the Interstate Commerce Commission, at 4 per cent interest unless a higher rate is charged on the company's outstanding bank loans, in which case the higher rate would be paid the R. F. C. if it holds the notes. In the event of a default in any other indebtedness by the company, the extended notes would automatically fall due. Mr. Jones also said that payment of the $15,600,000 would not prejudice further borrowings should the company find it necessary to apply again to the corporation. At a press conference he said he understood that the banks would continue to carry the short term loans which a few weeks ago he was endeavoring to have refinanced by an issue of long-term bonds. Mr. Vanderbilt announced that, due to the improved cash position of the company, the payment of the $15,600,000 on December 1 will be made from current resources without recourse to any borrowing. This will be in addition to having provided for a total of $38,232,336 of other obligations during the year, of which $23,279,250 was provided for by the sale of new securities, $806,269 represents repayments received from the Railroad Credit Corporation, and the balance, $14,146,817 from resources of the company. During 1936 the N. Y. C. will have maturing obligations of approximately $20,500,000 which it will be necessary to meet. For the purpose of meeting a portion of these obligations the company now has on special deposit a total of $4,001,000, which will leave a balance of approximately $16,500,000 to be provided for otherwise.

NEW YORK, NEW HAVEN & HARTFORD.—*I. C. C. Investigation Ordered.*—The Interstate Commerce Commission has ordered a proceeding of inquiry and investigation, on its own motion, into the "history, management, financial and other operations, accounts, expenditures of carrier funds in other than its common carrier operations, and practices" of the New Haven "in order to determine the manner and method in which the business of said company has been conducted with a view to the making of a report and such order or orders as may be appropriate upon the record." This is an outcome of the inquiries into the company's affairs made recently by Division 4 of the commission in connection with its application for a loan of $5,000,000 from the Reconstruction Finance Corporation, which was denied. It is understood it will be separate from the investigation of railroad financial affairs now being conducted in the name of the Senate committee on interstate commerce as to a list of 18 railroads, made up by Commissioner Eastman, which did not include the New Haven. The commission made an extensive investigation of the affairs of the New Haven on which it reported on July 11, 1914, following an earlier investigation of the New England roads. J. J. Pelley, who resigned as president of the New Haven a little over a year ago to become president of the Association of American Railroads, in a newspaper interview expressed the opin-

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ion that the investigation would serve no useful purpose and that the commission could learn nothing through a public investigation that was not already available to it. Howard S. Palmer, president of the New Haven, has written to Commissioner Mahaffie saying he had not regarded the investigation as representing a hostile attitude on the part of the commission and offering to co-operate in every way.

Reorganization.—Howard S. Palmer, president of the company, W. M. Daniels, professor of transportation at Yale University, and James Lee Loomis, president of the Connecticut Mutual Life Insurance Company have filed with the Interstate Commerce Commission petitions for ratification of their appointment as trustees, furnishing information called for by the commission under its special rules. In addition to that furnished the commission called for a supplemental statement as to holdings of securities of companies affiliated with the New Haven by institutions with which Mr. Loomis is associated and a statement was filed showing such holdings to the amount of $3,627,000.

UNION PACIFIC.—*New Director.*—Donald M. Nelson, vice-president of Sears, Roebuck & Company, has been elected a director of the Union Pacific.

WESTERN PACIFIC.—*Trustees.*—The Interstate Commerce Commission has ratified the appointment of T. M. Schumacher and Sidney M. Ehrman as trustees of this company, that of the former being on condition that he receive compensation only as trustee and not for any other services. The appointment of Charles Elsey, president of the company, as trustee was denied on the ground that "two trustees should be sufficient" and that "we deem it inadvisable to ratify appointment of trustees, the majority of whom are officers of the debtor." In the *Railway Age* of last week it was erroneously reported that Messrs. Schumacher and Ehrman had been appointed trustees of the Denver & Rio Grande Western.

Average Prices of Stocks and of Bonds

	Nov. 19	Last week	Last year
Average price of 20 representative railway stocks..	39.34	36.48	35.34
Average price of 20 representative railway bonds..	73.00	71.81	73.35

Dividends Declared

Chesapeake & Ohio.—70c, quarterly, payable January 1 to holders of record December 6.

Cincinnati, New Orleans & Texas Pacific.—$4.00, semi-annually; Extra, $3.00; 5 Per Cent Preferrred, $1.25, quarterly, all payable December 26 to holders of record December 4.

Illinois Central—Leased Lines.—$2.00, semi-annually, payable January 2 to holders of record December 11.

North Pennsylvania.—$1.00, quarterly, payable November 25 to holders of record November 18.

Philadelphia, Germantown & Norristown.—$1.50, payable December 2 to holders of record November 20.

Northern R.R. of New Jersey.—4 Per Cent Guaranteed, $1.00, quarterly, payable December 2 to holders of record November 20.

Pittsburgh, Bessemer & Lake Erie.—Preferred, 3 per cent, semi-annually, payable December 2 to holders of record November 15.

Richmond, Fredericksburg & Potomac.—$2.00; Non-voting common, $2.00, semi-annually; Dividend obligation, $2.00, semi-annually, all payable December 31 to holders of record December 23.

Union Pacific.—$1.50, payable January 2 to holders of record December 2.

West New York & Pennsylvania.—$1.50; 5 Per Cent Preferred, $1.25, semi-annually, both payable January 2 to holders of record December 30.

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

L. E. Reiley has been appointed auditor of the Tonopah & Goldfield, with headquarters at Tonopah, Nev.

W. H. Barrett has been appointed auditor of passenger accounts of the Florida East Coast, with headquarters at St. Augustine, Fla., succeeding **G. G. Lee,** deceased.

TRAFFIC

J. J. Matthews has been appointed assistant general freight agent on the Colorado & Southern (a unit of the Burlington Lines), with headquarters at Denver, Colo., succeeding **G. R. Glover,** who has been appointed to a similar position on the Chicago, Burlington & Quincy, with headquarters at Omaha, Neb.

H. N. Proebstel, who has been in charge of the traffic department of the West Coast Lumbermen's Association for the last 16 years, has been appointed assistant general freight agent for the Northern Pacific, with headquarters at Seattle, Wash.

A. G. Anderson, assistant to traffic manager of the Akron, Canton & Youngstown and the Northern Ohio, with headquarters at Akron, Ohio, has been appointed general freight agent and **J. J. King,** chief of tariff bureau, with headquarters at Akron, has been appointed assistant general freight agent. The positions of assistant to traffic manager and chief of tariff bureau have been abolished.

S. J. Witt, traffic manager of the Akron, Canton & Youngstown, with headquarters at Akron, Ohio, has been appointed freight traffic manager, in charge of rate legislation and tariff matters of the New York, Chicago & St. Louis, with headquarters at Cleveland, Ohio. **W. J. Courtney,** general freight agent of the Nickel Plate, has been appointed assistant freight traffic manager, with headquarters as before at Cleveland, to succeed **R. A. Williamson,** who, because of ill health, has relinquished the duties of this position and has been appointed assistant to the freight traffic manager. **B. A. Gaetz,** assistant general freight agent at Cleveland, has been appointed general freight agent at that point, to succeed Mr. Courtney, and has been succeeded by **L. Gallagher,** assistant general freight agent at Cleveland.

Oliver G. Swenson has been appointed assistant traffic manager in the traffic department of the Railway Express Agency at New York, succeeding **K. N. Merritt.** Mr. Swenson entered the service of the Railway Express Agency in August, 1919, after being discharged from overseas service with the A.E.F. and started as a billing clerk in the San Francisco depot agency. Two years later he was transferred to the office of the general agent. In April, 1925, Mr. Swenson was assigned to the office of superintendent of transportation and traffic at San Francisco and for ten years thereafter was a specialist in Western rate matters and assistant to the superintendent.

Oliver G. Swenson

Albert W. Aylin, assistant general freight agent on the Missouri Pacific, with headquarters at New Orleans, La., whose promotion to general freight agent at Houston, Tex., was noted in the *Railway Age* of November 9, was born on February 8, 1890, in England. Mr. Aylin entered the service of the Baltimore & Ohio in 1906, and from 1907 to 1909, he was with the Wabash, then going with the Missouri Pacific as a clerk in the traffic office at San Francisco, Cal. In 1911, he was made chief clerk at Little Rock, Ark., and in 1923, he was promoted to division freight agent at the same point. In the following year Mr. Aylin was further advanced to assistant general freight agent at Little Rock, being transferred to New Orleans in November, 1932, where he was serving at the time of his recent promotion.

Albert W. Aylin

Roy E. Smith, assistant general freight agent on the Northern Pacific, whose promotion to assistant to the general traffic

manager, with headquarters as before at St. Paul, Minn., was noted in the *Railway Age* of November 15, was born on November 11, 1885, at St. Paul. Mr. Smith entered the service of the Northern Pacific on July 1, 1902, as an office boy in the freight department, later serving as a clerk. In May, 1911, he was advanced to contracting freight agent, with headquarters at Minneapolis, Minn., being further promoted to traveling freight agent in February, 1912. Three years later Mr. Smith was made chief clerk to the assistant general freight agent, general office, and during the following nine years he served successively as chief clerk in the

Roy E. Smith

offices of the vice-president, traffic, the traffic manager, the freight traffic manager, and in the general freight department. In September, 1925, Mr. Smith was appointed assistant to the freight traffic manager and on December 15, 1925, he was made assistant general freight agent, which position he was holding at the time of his recent promotion.

OPERATING

L. D. Hickey, assistant superintendent on the Port Arthur division of the Canadian National, with headquarters at Rainy River, Ont., has been transferred to the Calgary division, with headquarters at Hanna, Alta., succeeding **S. McElroy.**

Verne Elliott, yardmaster on the Minneapolis, St. Paul & Sault Ste. Marie at Duluth, Minn., has been appointed trainmaster on the Stevens Point division, with headquarters at Stevens Point, Wis., succeeding **William H. Clausen,** who has been transferred to the Wisconsin & Peninsula division, with headquarters at Gladstone, Mich.

The division offices of the Erie at Buffalo, N. Y., formerly at its old passenger station at Michigan and Exchange streets, have been moved to the Lehigh Valley station on South Main street. Erie passenger train service was moved from its old station to the Lehigh Valley station on August 5.

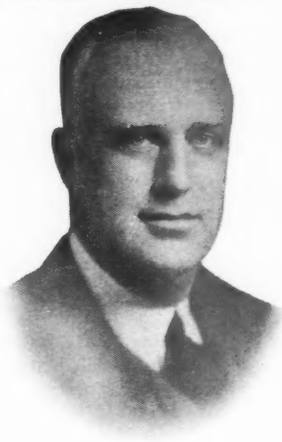
MECHANICAL

H. M. Smith, master mechanic of the Saskatoon division of the Canadian National, has been appointed acting superintendent of motive power and car equipment of the Saskatchewan district, with headquarters as before at Saskatoon, Sask. **W. Alexander** has been appointed master mechanic at Saskatoon, to succeed Mr. Smith.

SPECIAL

John G. Castle, assistant secretary of the board of pensions, New York Central System, has been appointed secretary of the board of pensions, with headquarters at New York, succeeding **James A. Dailey,** who has been granted a leave of absence to serve as a member of the Railroad Retirement Board at Washington, D. C.

Kinsey N. Merritt, assistant traffic manager of the Railway Express Agency at New York, has been appointed assistant general manager, Department of Public Relations, at New York. **John S. Gorby** has been appointed assistant editor of publications at New York. Mr. Merritt entered the service of the Railway Express Agency 27 years ago at Baltimore, Md., and after nine years in various operating positions, he became chief aide to the superintendent of the line division, covering the Del-Mar-Va territory, with headquarters at Philadelphia, Pa. In March, 1930, he was appointed traffic agent for the Al-



Kinsey N. Merritt

legheny department, with the same headquarters, and was assigned to the traffic department at New York as assistant traffic manager in March, 1930.

Treatment of the Railroad Patient—or an Autopsy?

Railroad carriers reporting to the Interstate Commerce Commission nowadays are like a man who has gone to Medical Centre for an overhauling. After he has been stripped, measured, weighed, cardiagraphed, X-rayed, fluoroscoped, basal-metabolized and stethoscoped, and has disclosed all the secrets of his past life and those of his ancestors, what is left for doctors to discover, that is going to make the difference between life and death for him?

Any family physician could diagnose the railroad patient's case for the symptoms are plain. Malnutrition is the main trouble. True the patient is himself at fault in no small degree. He has, like so many business men, neglected to take care of himself. His arteries are hard, his blood lacks color, his heart is overstrained—all the result, no doubt, of his own lack of care and foresight. But the thing that is killing him is starvation, and the doctor's immediate job is to save his life. An autopsy will no doubt yield information of interest to science and of value to future generations of practitioners. But that will not furnish much consolation to the corpse's immediate family.

Dropping metaphor, the first task of those who have any power to influence the destiny of railroads in this country is to use that power to enable the railroads to cut expenses and increase traffic. When all that can be done in that direction has been done it will be time enough to attend to other things.

From the Wall Street Journal.

OBITUARY

James E. Hannegan, chairman of the Southwestern Passenger Association, died in a hospital at St. Louis, Mo., on November 14, at the age of 72 years.

Henry Vier, who retired in 1932 as engineer of re-surveys in the land tax department of the New York Central, died on November 18 at his home in White Plains, N. Y. Mr. Vier was 71 years old.

J. L. Suesserott, division engineer on the Staten Island Rapid Transit Lines of the Baltimore & Ohio, with headquarters at St. George, Staten Island, N. Y., died at his home at New Brighton, S. I., on November 14.

G. G. Lee, auditor of passenger accounts of the Florida East Coast, with headquarters at St. Augustine, Fla., died in that city on November 3. Mr. Lee was 66 years old and had served as auditor of passenger accounts since February 1, 1926. He had been in the service of the Florida East Coast for 36 years.

James R. Geddes, formerly vice-president and general superintendent of the Monongahela Connecting Railroad, Pittsburgh, Pa., died at Long Beach, Cal., on November 9. Mr. Geddes was born on November 26, 1884, at Belfast, Ireland, and entered railway service on April 3, 1903, as a yard clerk with the Monongahela Connecting Railroad. He then served successively as clerk to trainmaster, chief clerk to the superintendent of transportation, assistant chief clerk to the general manager, and chief clerk to the general manager until 1917, when he was appointed superintendent of transportation. Five years later Mr. Geddes was appointed assistant superintendent and in 1925 he was promoted to superintendent. Two years later he was made general superintendent and subsequently he was given the title of vice-president and general superintendent. Mr. Geddes had been out of railway service for less than a year.